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RADIO CONTROL

car action

THE WORLD'S BEST-SELLING RC CAR MAGAZINE

47380

**BUY IT &
DRIVE IT!**

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built nitro
stadium
truck *page 58*

Plus: How
to break it in *page 168*

**BEST
HOP-UP**

Go faster longer *page 148*

ALSO TESTED

Associated Factory Team GT & B3
Team Losi Rally Weapon
Corally C4 Euro Champ Edition

HPI Nitro Rush



page 130

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Project TC3



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ON THE COVER from top: Mugen's MRX-2 makes another high-speed pass; the HPI Nitro Rush gets ready to wipe out the camera; our newest publication, *Radio Control Nitro-OK*; a shameless plug (buy it! Now!); and a beauty shot of our Trinity-nitro-converted Associated TC3. Walter Sidas lensed 'em all.

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RC on TV: Could it happen?

"The networks should cover RC racing." You can't escape that comment when the pre-main chatter heats up at the local racetrack. There's a long history of RC enthusiasts pushing the powers of television for coverage of RC events, but a form letter is usually the only response. Most recently, ESPN's website message board had a minor, but inspiring, flurry of posts supporting coverage of RC racing on the sports programming monolith.

So how do we get RC on big-time TV? I think the answer is to concentrate on the cool factor of the hardware, not the racing action. There are a few reasons why RC racing is a tough sell for television programmers, and most revolve around the economics of television and the technical difficulties of capturing an RC event on video in a way that is entertaining and can be followed by the maximum number of viewers, not just dedicated RC fans.

For RC to make it on television, the products should be the stars—not the drivers. Instead of race coverage, we need hobby coverage. Imagine a program like "Shadetree Mechanic" or "Hot Rod TV" devoted to RC. "Today on 'RC Garage,' I'll be dropping an O.S. 4-stroke into our Project SuperTen and adding an onboard fail-safe. And check out what Joe's working on!" Cut to Joe. "Thanks, Mike. Today I'll show you how to paint a perfect fade—from a can! And then we'll check in with Brian Kinwald for his Inferno 7.5 setup secrets." Would you watch that show? I sure would. There is "RC TV", which airs on public television and covers the whole RC hobby spectrum, but as far as I know, no one has created the car-guy show we crave. So who will step up? You could! If you have cable, you have a cable-access channel that allows you to create your own programming. I say go for it; what starts out as a fun project could get attention from a real production company or network if you do a good job. At the very least, you'll have fun. Give it a shot.

Peter Vieira
Executive Editor

JACKIE RHODES WINS!

Last month in this space, I challenged you to put your favorite things about RC to the tune of "My Favorite Things" from "The Sound of Music," and I promised that the first to respond would get whatever stuff was on my desk when I opened the letter or email. Jackie Rhodes of Bristol, TN, was the quickest at the keyboard with these inspired lyrics:



*Voltage and run time are battery basics,
Losis and GTs and smiling kids' faces,
Watching the A-main while leading the pack,
Bringing my chair so I don't break my back,*

*Comm sticks and H-slicks and motors with power,
Driving on top of a 20-foot tower,
Gluing my tires so they don't fly away,
These are some things that make my RC day.*

What, no chorus? For his efforts, Jackie wins an Orion Mach Mod motor, half a Pop Tart, a Trinity matched 2400 pack, a Magic Marker, a set of Pro-Line Masher tires and a fresh package of Post-it notes (I'm really bummed about the Post-its; everybody steals mine). Congratulations Jackie!

RADIO CONTROL car action

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Buggy or Truck: which is Faster?

I am going to buy an RC car, and I have narrowed it down to a Triple-XT and a Triple-X. I have looked at all their features, but I don't know which one goes faster. I'm pretty sure the Triple-XT does, but I'm not sure. [email]

BOB KUJOO

Neither one of those kits will go anywhere until you install a motor, battery, speed control and radio gear. Equipped with identical electronics and gear ratios, the truck will pull the buggy, thanks to its bigger tires, which give it a taller effective gear ratio. But the buggy is lighter and more aerodynamic, and it can go even faster than the truck when geared for speed. That's top speed; if "fast" to you means quick lap times, a buggy will turn faster laps than a truck on a smooth track; on rough tracks, trucks are generally faster. That answers your speed question, but from the sound of your letter, I think you should get a truck. It sounds as if you're just out for backyard play, and the Triple-XT's long-travel suspension and wide stance will be more stable and more fun for that kind of bashing around.

—Pete

One More for the Ladies

Hi! I am a 16-year-old girl, and I have been racing since I was

about 11. I was one of the only girls racing in my area then. I think that Angela needs to realize that although RC is a male-dominated sport, it is not just for men. I know what she means when she says that she is tired of hearing all the guys' excuses, but in any sport, you hear reasons why the team or person lost; it's not just in RC racing. I think that if she gets that mad about the whole idea of being there, she should just stay home because it will start to affect her boyfriend's racing. And if she does not understand the time and effort you have to put into these cars, then I think maybe she should try holding the radio for a while and she will soon see that the car becomes part of you; it's who you are. So my advice to her is, 1: stay home and be ready to ask, "How was the race, sweetie?"; 2: ask her boyfriend to help her get started in racing herself so she can deal with the same stuff as he goes through. Have fun at the track, Angela!

[email]

SARAH SMITH

In Angela's defense, I think her original letter ("This one's for the Ladies," June 2000) was written tongue-in-cheek, but it looks as though she really touched a nerve! Thanks for stepping up to the keyboard, Sarah.

—Pete



Postcard from the HPI Challenge

I attended the HPI Challenge held at R/C Madness on July 8 and 9. I didn't race because I don't have an HPI, but I wanted to say that I had a great weekend. The weather was beautiful, people were friendly, and I think the HPI personnel did a great job. I tried to help out where I could, mostly by working the corners. I truly hope that HPI does this again soon. I hope to get into nitro soon and am considering an HPI. However, since I have an Associated TC3, I am also thinking about Trinity's nitro conversion. I would greatly appreciate any input from fellow racers who may have experience with this kit. (Pete, if you publish my letter, please also print my email address so others can respond.)

ROB

sixone1@email.msn.com

No problem, Rob! Be sure to check out Derek Buono's "Project Nitro TC3" in this issue. I appreciate the email invitation, and encourage the rest of you out there to include an "OK to print my email" message with your letters if you want readers to respond to you.

—Pete

This Letter is Classified

I wonder what's the best way to sell RC stuff. I want to sell some cars (so I can buy more cars!), but I don't have a local hobby shop to put a sign in or leave my stuff in a "used" case. I tried the "swapper" papers, but I think the only people who read those are looking to buy chain saws and stuff or get a date from the personal ads ("SWM seeks SWF who likes long walks on the beach. I also have a chain saw for sale."). I'm a little leery of online auctions, and frankly, I just want to move the stuff cheap, not get rich on it. Any ideas? [email]

Paul Jennings

Try the *Radio Control Car Action* online classifieds; just log on to www.rccaraction.com/zone/ads. You're guaranteed an audience of diehard RC car fans, and an ad is cheap! Check out the rest of the site while you're there; we have bulletin boards in the "RC Zone," the latest news, online chats ... all kinds of stuff.

—Pete ■

YOU SAID IT "Let's show people how much fun they could be having."

I was reading the "Starting Line" piece about the guys who feel they have to justify RC as a "serious" grown-up hobby by letting everyone know they spend a lot of money on it. I agree with you 100 percent. These are toys we're dealing with here, just like those older guys with the '32 Fords at the hot-rod cruise nights, or golfers, or anything! Let's have fun and show other people how much fun they could be having.

The hardest question I ever get asked about RC is "How much does it cost?" I always try to answer truthfully, but I also try to let people know that it's probably cheaper than they think to get started. You don't have to go all-out to have a total blast with an RC car. I also offer my services to newbies to help

them select a car and choose gear wisely, and I help them tune their cars once they have them. I have even gone as far as donating my old, used cars to kids who want to get into RC. I think it's important to impress on people that hobby-quality RC cars may be inherently more expensive and complex than the "RadioShack" variety, but their primary purpose is the same. Anyway, that's my rant. I just want people to realize that this isn't some exclusive club we're in; we're just folks who play with toy cars, and if you get one, you can play, too.

MARK TUCKER
St. Paul, MN

Thanks for the input, Mark; enjoy your GS Racing T-shirt. Readers: don't forget to include your address with your letters and email, just in case you wind up in "You Said It" and have a prize coming!

—Pete



WRITE TO US! We welcome your photos, drawings, comments and suggestions. Letters should be addressed to "Letters," Air Age Inc., *Radio Control Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606. Letters may be edited for clarity and brevity, and each must include a full name and address or telephone number so that the identity of the sender can be verified. We regret that, owing to the tremendous numbers of letters we receive, we can't respond to every one.

EMAIL: ■ Derek Buono: derekb@airage.com ■ Chris Chianelli: chriso@airage.com ■ Kevin Hetmanski: kevinh@airage.com ■ Steve Pond: stevep@airage.com
■ Peter Vieira: peterv@airage.com ■ Greg Vogel: gregv@airage.com



BY CHRIS
CHIANELLI

TRAXXAS E-MAXX COMING SOON!

THAT ISN'T A TYPO: AN ELECTRIC VERSION OF THE WILDLY POPULAR T-MAXX IS ON THE WAY, and it will be called E-Maxx. The new truck will feature the same supple suspension as the T-Maxx, but the "E" version will be much more than a converted nitro truck. Here's the shortlist of features that Traxxas is willing to talk about:

- Molded, semi-tub chassis.
- Dual-motor power.
- Electronic speed control with forward, reverse and brake included.
- Two-speed transmission with reverse.
- Extra-tough, nylon-composite molded chassis that accepts stick and saddle packs.
- All-new factory-finished and trimmed ProGraphix crew cab body.
- Hardened-steel diff gears and sealed gearbox.
- Full bearing set.

I saved the biggest bombshells for last: the E-Maxx will run on 12 cells (two stick packs, or side-by-side packs will fit the chassis), and the 2-speed tranny will be controlled from the radio using the same 3-channel TQ3 transmitter as the T-Maxx uses! For the first time, you can bang the gears at will (and without stopping) instead of having to wait for a centrifugal system to wind up. Now all we need is a more revealing photo!



MORE TRAXXAS STUFF



THE E-MAXX IS THE BIGGEST NEWS OUT OF TRAXXAS, BUT THERE'S OTHER COOL STUFF COMING OUT OF TEXAS THESE DAYS. The Nitro Rustler, Nitro Stampede and Nitro Sport are getting some technical and esthetic upgrades that can increase their popularity. Here's what's new:

- Aluminum chassis are now blue-anodized.
- Chrome, 5-spoke Pro Star wheels are standard.
- ProTrax 4790 tires are now made of longer-lasting rubber compound and have shorter, fatter knobs.
- EZ-Start systems feature upgraded one-way bearings, steel main gears, heat-resistant-silicone-covered wires and high-torque motors for extra starting power and increased durability. Also, the EZ-Start receptacle is now securely bolted to the battery box.
- High-torque (80 oz.-in.) Traxxas 2055 steering servos are standard (this is the same steering servo as is found in the T-Maxx).

- Six-color, factory-finished ProGraphix bodies are included.

Traxxas, 12150 Shiloh Rd., Dallas, TX 75228; (972) 613-3300; fax (972) 613-3599; www.traxxas.com.



TRINITY HEAVY-METAL CELLS FOR NITRO RACERS

NO LIFTING REQUIRED

TRINITY MOBILE HAULER BAG

Have you ever seen the "World's Strongest Man" competition? To heck with bench-pressing Citroens and pulling buses; I want to see one of those no-neck 'roid freaks try to lift my pit bag! Trinity's new Mobile Hauler bag will get you to the track without separating a shoulder. It features three, heavy-duty inner boxes and a tough, padded-nylon shell, but its best features are its collapsible handle and the wheels in its base. Why lug when you can roll?



Trinity has expanded its giant battery line to include the Nitro series of receiver packs, which are available in the assortment of configurations shown here. It looks as if there's a pack to suit every type of vehicle, including machines such as the HPI Rush and Team Losi Triple-XNT, which have closely fitting battery boxes. All the packs feature long-lasting 1100mAh NiMH cells to keep your truck or buggy in full control during those hour-long Mains.

Trinity, 36 Meridian Rd., Edison, NJ 08820; (732) 635 1600; fax (732) 635-1640; www.teamtrinity.com.

"Send 'em back" says JR

JR Racing recalls 8417 and 8450 servos

If you run a JR 8417 digital servo or a 8450 race servo, you might want to send it back to JR for a free motor upgrade. According to Steve Goodreau of Horizon Hobby (JR's distributor), some of the servos were shipped with sub-par motors that may not perform to JR's standards. "Unless you're using the servos in an application that requires 100 percent of their speed and torque, you probably wouldn't notice the difference, but it's that '100 percent' we're thinking about when JR designs and builds servos," says Steve. If you feel your 8417 or 8450 servo isn't performing to spec, return it to Horizon Service Center, Attn: JR8417/8450 motor upgrade, 4105 Fieldstone Rd., Champaign, IL 61821.

FROM FUEL TUBING TO RACE CARS; I don't think there's a more ambitious company in RC at the moment! In addition to its just-released 1/8-scale on-road car, GS Racing—the well-known silicone stuff maker—revealed this buggy project, fresh from testing at the famous Hemet off-road track. According to GS, this is an early prototype and the production car will be very different. In addition to a full-on racer, a sport model with engine will be offered; expect the following features:

GS RACING to debut 1/8 buggy

- Plastic diff cases.
- Adjustable fuel-pressure fitting.
- Bracket-supported air filter and fuel filter.
- Unique suspension-arm design.
- Spiral-cut steel gears.
- Steel spur gear.
- Swaybars.
- Full chassis braces.

The Pro model might include graphite parts, MIP CVDs or similar drive shafts and other features. It's too soon to tell!

GS Racing, 650 West Duarte Rd., Ste. 205, Arcadia, CA 91007; (626) 445-6036; fax (626) 445-6084; www.gswb.com.tw.



REAL WHEELS. HG ALLOY TOURING-CAR WHEELS

If "real" is your deal, you'll be all over HG's latest bit of CNC wizardry. The LeMans wheels shown here are machined from a solid alloy billet for the ultimate in good looks and strength. The three-sided "hex" looks weird, but it accepts a standard 12mm sedan hub—no problem. While we're talking measurements, the rims are 26mm wide and have "standard" offset. In addition to the LeMans 5-spokes, HG plans to release aluminum wheels with other spoke patterns. Definitely cool.

this time the sequel is even better



more powerful than ever before this high performance racing pack now features Sanyo KR-1500sc cells, the only true 1500 cell in rc racing packs. RC5920, \$22.99

The legend returns! the most popular sport battery pack ever produced for R/C racing is back and it's now packing 1400 mAs of raw power, and a new lower price! RC5922, \$18.99



now playing at all good rc hobby shops

TRINITY
www.teamtrinity.com

***** 5 Stars

"Better than the original, more action and a lower cost!"



SHOOT THAT ENGINE!

KYOSHO AD-One Digital Temp Gun

Kyosho's new point-and-shoot temperature gun uses a laser to measure temps ranging from -20 degrees to +315 degrees F; it turns itself off automatically 5 seconds after displaying a reading; and it includes a carrying case. No matter how well-tuned your ear is to the sound of a rich or lean engine, you can't beat the accuracy of a digital temp gauge for engine tuning. Even electric guys can benefit by checking their motor

temps to see whether a gear ratio is too high or not high enough. You can also use the gauge to check track and tire temperatures and ESC heating, or even to take your own temperature! (Kids: don't let your mom find out, though, or you'll never be able to blow off school again.)

Buoni-wan Kenobi
in action



Team Losi's "Secret" Weapon

TEAM LOSI IS TOOLING UP A NEW SEDAN. What will it be called? Will it have belts, shafts, or something else? Front, mid, or rear motor? Any suspension innovations? No one knows, except for Gil Losi Jr.'s crew and a few team drivers. But the car is out there, with painted-out windows and a no-camera policy. As this "black project" sees the light of day, you'll get your first glimpses in "Inside Scoop." Hang tight.

Update: as I type, the Team Losi "Secret Weapon" (as I like to call it) just finished the Worlds warm-up race in Japan. The car was designed as a test mule for a new drive train, not as a ready-for-the-world (or Worlds) racecar. Although it didn't find its way into the A-main, Team Losi was very satisfied with the new drive train. Now if they would just tell me what that drive train is

GO AHEAD MAKE MY MAIN



PRO-LINE DIRTY HARRY

Pro-Line's "Dirty Harry" features a widely spaced, sorta-chevron knob pattern. The new tire will fit all 1/8-scale buggy rims and can be run in either direction to suit your traction needs, or the individual knobs can be trimmed for even greater tuning flexibility. Look for the new rubber on shelves soon, in XTR and M2 compounds with included foam inserts.

Pro-Line/Jaco, P.O. Box 456, Beaumont, CA 92223; (909) 849-9781; fax (909) 849-2968.

SHOCKING NEWS!

The Choice Of Matt Francis, Brian Kinwald
David Spashett, Josh Cyrul & Barry Baker

Available in 10-15-20-25-30-35-40-45-50-55-60-70-80-90-100
Plus the following "1/2 Weights" 27.5-32.5-37.5-42.5

1/2 Weights....The Idea So Good
The Competition Had To Steal it

\$3.50

100% Pure Silicone
Blended According To The General Electric
Blending Chart. Blended By Volume to a
Tolerance of .001% Or Less!

The Champion's Choice

TRINITY 40 Weight
Front & Rear

the fabulous
barry baker



THE FULL-SCALE FILES

NOW, THESE ARE WHAT I CALL "STREET WEAPONS"! OK, so these cars aren't RC—unless "RC" stands for "really cool." The builder and owner of the uncivilized Civic is none other than Richard Trujillo (say "Troo-hee-yo"; I think you can pronounce "Richard" without my help), Team Losi's well-traveled team manager. I'll let Richard

describe his ride:

"The big things I've done include swapping the stock 1.5L 70hp engine for a 1.6L 160hp twin-cam engine. The engine has a complete factory Integra Type R head with a Mugen Valve cover [the cover is listed at \$900—ouch!] and a Type R transmission. Now it produces about 205hp naturally aspirated. The car weighs only about 2,100 pounds. There's a ton of other goodies, but that's some of the big stuff."

Nice work, Richard, but the king of the hot rods is your boss, Pops Losi, with his 1960 Sunliner. It has an all-leather custom interior, air bags to lift the slammed chas-

sis off the ground for real-world driving and a 1996 Lincoln Mark VIII engine under the hood.

Tamiya guys can go fast, too; Eric Sands, Tamiya's top customer service guy, sent in this shot of his vintage racer. I'll let Eric share the details with you:

"This is a 1966 Alfa Romeo Giulia Sprint GT Veloce. The car was purchased as a sad, but rust-free, runner and converted for track use over a four-month period. The original 1600cc engine was replaced with a mildly modified 2L, and hotter cams, 10.5:1 pistons, GTA headers and a full balance were added to the stock dual Weber 40DCOE carb set up for a final 150hp. The suspension was all redone with Shankle components, including swaybars, springs, Koni shocks, adjustable upper links and a limited-slip diff.

"Last time out on the track, I surprised a lot of big-bore car drivers when I passed them at the end of the front straight at Willow Springs! You just wouldn't believe how much fun this car is."

Tell you what, Eric: let me drive next time I'm in Cali, and I'll let you know whether I believe you!



Richard's uncivilized Civic



Pops' slammed Sunliner



Eric's awesome Alpha

NEW PROTOFORM BODIES



Chrysler 300M



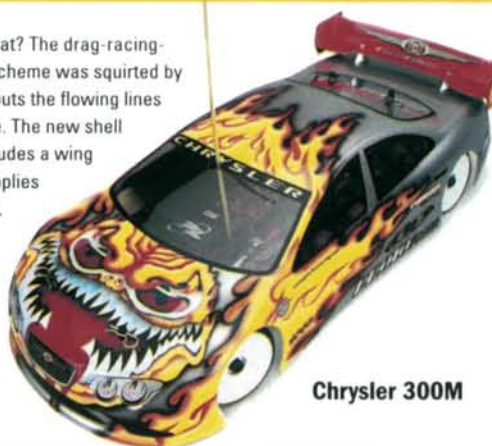
Citroen Xsara



200mm Vectra and Stratus

is this Chrysler 300M hot or what? The drag-racing-inspired "Nitro-mater" paint scheme was squirted by Brian Chudy, and it definitely puts the flowing lines of the big Chrysler to good use. The new shell will fit 190mm tourers and includes a wing and hardware, and Protoform supplies window masks and a decal sheet.

Protoform has also added a Citroen Xsara rally to its 190mm lineup, and the popular Stratus and Vectra sedan shells are now offered in 200mm versions—perfect for nitro. Protoform, P.O. Box 456, Beaumont, CA 92223; (909) 849-9781; fax (909) 849-2968; www.pro-linerracing.com.



Chrysler 300M

HARDCORE TITANIUM

YOUR EYES AREN'T PLAYING TRICKS ON YOU; THESE PARTS ARE GREEN.

They're also 6A4LV titanium, so you know they're strong as ... hmmm, I'll say they're as strong as the Incredible Hulk, because they're green! Hardcore Racing Components is the source for shrubby-colored wondermetal parts that are custom-fit for the HPI Nitro RS4. Hardcore also has aluminum and titanium parts for the Traxxas T-Maxx, OFNA OB-4 series, Kyosho MP-6 and other vehicles; you can check out all the stuff at www.racinghardcore.com.

Hardcore Racing Components, 4525 East Industrial St., Unit 4R, Simi Valley, CA 93063; (805) 522-1800; fax (805) 579-9651.



Rainy day? Pop in an RC video!

Perry's Hobbys (don't look at me; that's how they spell it) has put together "The Incredible World of Radio Controlled Vehicles" for your viewing pleasure. The 45-minute video includes clips of monster trucks, dragsters, touring cars, race trucks—you name it, nitro and electric—on racetracks, vacant lots, rock beds and everything in between. There's even some RC hovercraft footage! Make sure you have a few packs charged up before you watch the video, 'cause you'll be wanting to drive when it's over.

Perry's Hobbys, 7009 East Acoma Dr., Box 1075, Scottsdale AZ 85254; www.perryshobbys.com/moviepage.asp. ■



Win a \$500 gift certificate from DuraTrax! Send a sharp, uncluttered, well-exposed color photo of your vehicle (no Polaroids), and a brief description, to *Readers' Rides, RC Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606 USA. If we publish your photo, you'll receive a free RC Car Action decal sheet and will be eligible to win a \$500 gift certificate from DuraTrax in the "Readers' Rides of the Year Contest." Write your address and phone number on your letter and on the back of every photo you send. Good luck!

Readers' Rides



Jorge Diaz Esquivel,
Las Vegas, NV
HPI RS4 Sport

This RS4 Sport with its Ford F150 body is Jorge's first car. It features an 18-turn motor and is controlled by an Airtronics radio. When Jorge gets tired of trucking, he swaps the body for one of his two others—a Lamborghini Diablo and Mercedes Benz CLK.

John Manos, Hollywood, FL
Schumacher Axis Pro

This Axis is equipped with an LRP V6 ESC, a Reedy Sonic 10-turn double-wind motor, a KO Propo receiver, a full graphite chassis and a Protoform Stratus body. John's other hop-ups include carbide diff balls and Lunsford titanium turnbuckles. The Stratus in the background looks as if it has some hop-ups, too.



Paul Strutt, Orkney, Scotland
Renault Army Truck

This 1/10-scale army truck was largely custom-built by Paul. The chassis is pine strips covered with fiberglass cloth and epoxy and joined by aluminum cross-members. The cab and bed are made of white styrene. The front axles are aluminum, and at the rear, Paul used Tamiya Lunch Box axles. The leaf-spring suspension was made of sheet fiberglass, and Paul added Mardave shock absorbers to each corner.

Justin Danek, Milwaukee, WI
Tamiya Indycar

Justin and his father race this Tamiya Cart champion with several others like it at Wisconsin's Champ Car RC club; all the cars have the stock kit motors. Justin's also has a Novak EX Racer ESC and chrome wheels.



Readers' Rides

Michael Callahan, Plainfield, IN HPI RS4 Pro

This hot HPI RS4 Pro with an F150 body is powered by a Trinity P2K motor and Team Orion cells. It's also equipped with HG alloy shock towers, Robinson Racing aluminum ball diffs and a DuraTrax Streak ESC.



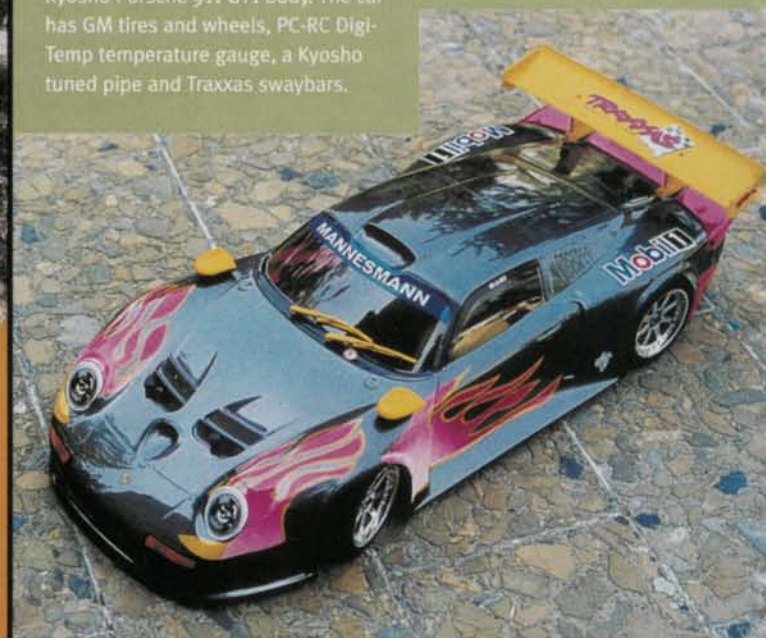
Burak Balkir, Bursa, Turkey Traxxas Nitro 4-TEC

This Nitro 4-TEC comes all the way from Turkey and wears a Kyosho Porsche 911 GT1 body. The car has GM tires and wheels, PC-RC Digi-Temp temperature gauge, a Kyosho tuned pipe and Traxxas swaybars.



Daniel Burns, Pekin, IN Team Losi Triple-X and Double-X buggies and Traxxas Nitro Rustler

Daniel's Triple-X features a 14-turn Trinity D3.5 motor, a Tekin Speedstar speed control and Lunsford titanium turn-buckles, and the Double-X has a Trinity Zircon 9-turn modified motor and a Novak 410-M5 speed control. The Nitro Rustler is equipped with an MIP 360 stinger pipe, Pro-Line tires and ball bearings.



Chad Campbell, Highland, CA Team Associated RC10 TC3

A patriotic background highlights this TC3, which is powered by a Trinity Speed Gem Platinum 13-triple and a Sanyo 3000mAh battery pack. Other features include a Novak Duster 2 Sport speed control, a Hitec Shredder receiver and an Airtronics XL2P AM radio. Pro-Line 26mm Road Rage tires on RPM rims provide the gripping power. ■



sponsored by

DURATRAX

Pit Tips

ILLUSTRATED BY
JIM NEWMAN

WIN AN OFNA Z-10 RALLY! Radio Control Car Action will give a 6-month subscription (or extend an existing subscription) to the author of each idea used in "Pit Tips." "Top Tip" winners receive an OFNA Z-10 Rally kit. All published "Pit Tip" authors receive an OFNA yo-yo. Send a rough sketch to Jim Newman, c/o Radio Control Car Action, 100 East Ridge, Ridgefield, CT 06877-4606 USA. BE SURE YOUR NAME AND ADDRESS ARE CLEARLY PRINTED ON EACH SKETCH, PHOTO AND NOTE YOU SUBMIT. We're unable to publish many good tips because we don't have the sender's name and address. Please note: because of the number of ideas we receive, we can neither acknowledge every one nor return unused material.



Tire Tool

Here's a simple and effective method of mounting your tires. Carefully remove the closed top section of a cap from a large aerosol spray can. Slide the remaining circular portion over your rim and tire. Apply CA across the bead of the tire, leaving the ring in place until the glue has dried. The ring maintains even pressure and keeps your fingers glue-free.

FRITZ SKEETER

Suffolk, VA



Cleaner Cups

Foam-rubber ball-cup protectors prevent dirt from binding your linkage. If your kit didn't include them, or you'd like to dress up your ride with a different color—make your own. The foam is available at craft stores; use a 1/4-inch hole punch to create circles, and open the center with an 1/8-inch center punch.

BOB GENTRY

Gettysburg, PA



Fixed Ball-Link Conversion

This tip allows you to make your RC vehicle's fixed-length links adjustable (if they're constructed of sufficiently thick material). Cut the link in half, and drill a hole to accommodate a 3mm-diameter bolt. Thread the bolt into one half of the link, then remove the bolt's head with a cut-off wheel and a rotary tool. Thread on the other half, adjust to the desired length, and reinstall it on your vehicle.

CURTIS BROOKS

North Las Vegas, NV

Kyosho Inferno Shock-Pin Retainer

The Inferno-series buggies use a blind pin to hold the lower shock eyelet; prevent the pin from working itself out by grinding a flat spot on the pin to provide the setscrew with more area to grab. Mark the head of the pin on the same side as the flat spot so you can line it up correctly.

JARNO MÄKINEN

Vaasa, Finland



TOP TIP

Replacement Ball-Cup Tool

If you've bent (or lost) your ball-cup tool, here's how to make a sturdy replacement. Using a rotary tool, grind a slot in the tip of a flathead screwdriver. Be sure to use eye protection at all times.

JONATHAN BURNETT

Lumberton, NC

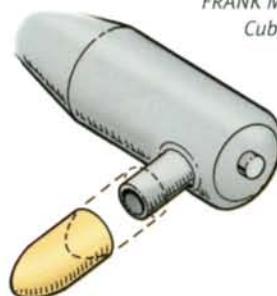


No-Mess Maxx

Save the protective cap that comes on your T-Maxx's carburetor. After you've finished running for the day, place the cover over the exhaust outlet to prevent oil residue from leaking out.

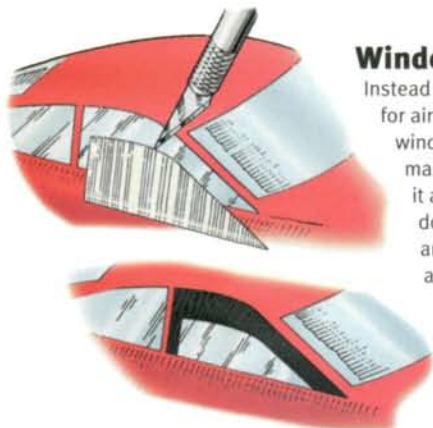
FRANK MAGEL

Cuba, MO





Pit Tips



Window Detail

Instead of cutting an unsightly hole in your car for airflow, make it look as though your car's window is rolled down. Use the window mask that came with the body, and place it at the height you would like the window to be "rolled down" to. Remove the area around the window with a knife or a Dremel tool after the body has been painted; then lightly sand the window edge, or tint it to make the detail stand out more.

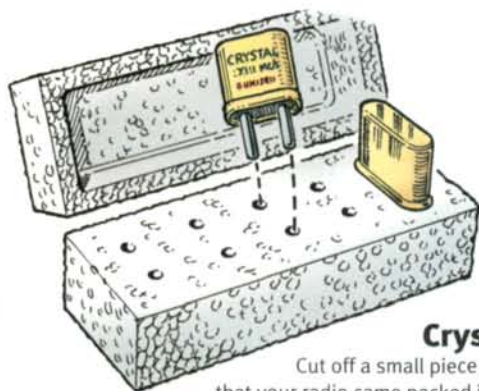
TIM PENNINGTON
Waukesha, WI



Tire Storage

Plastic powdered drink mix containers are a great way to store and protect your tires. Put your fronts in one can and your rears in another. Be sure to mark the lids so you can identify them in your pit bag.

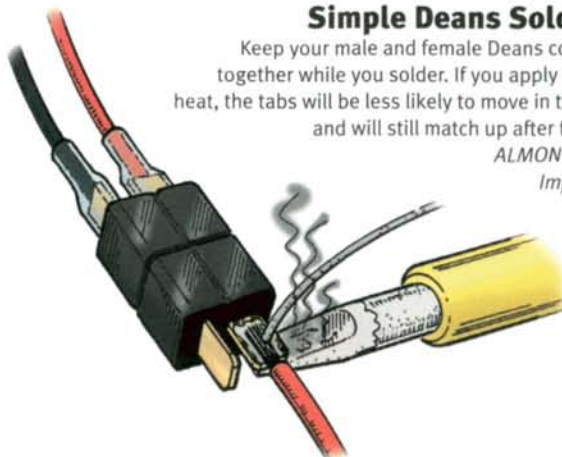
JASON HARMON
Nappanee, IN



Crystal Keeper

Cut off a small piece of the Styrofoam that your radio came packed in, and keep your extra crystals in it. This will protect them from rattling around in your pit box and getting damaged.

ALEX LANGER
Algonquin, IL



Simple Deans Soldering

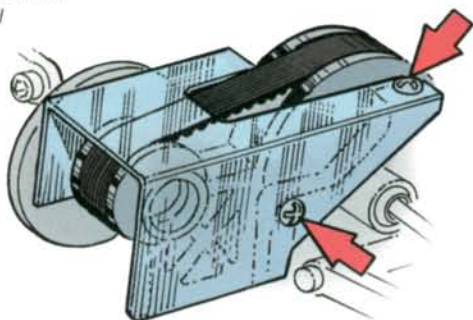
Keep your male and female Deans connectors together while you solder. If you apply too much heat, the tabs will be less likely to move in the casing and will still match up after they cool.

ALMON McCLAIN
Imperial, CA

Debris Deflector

Belts will be damaged if small pebbles get caught in the drive train. To shield debris from entering the pulleys, make a small "doghouse" out of clear plastic attached to the existing screw holes. Be sure there is sufficient clearance for proper belt and linkage operation.

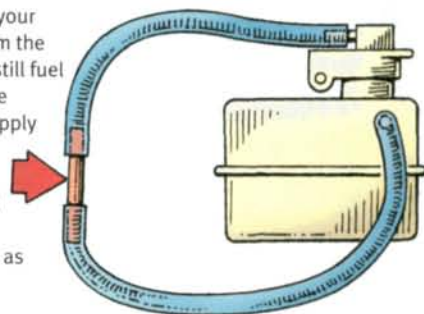
RANDY HEIMANN
Mililani, HI



Spill Prevention

If you need to remove your engine or fuel tank from the chassis while there is still fuel in the tank, connect the tank's pressure and supply lines to each other with a short length of antenna tube. This will prevent fuel from spilling out of the tank as you work.

KENNY COMPTON
Milton, WV



Troubleshooting

BY DEREK BUONO • ILLUSTRATIONS BY JIM NEWMAN

If you have a technical problem that your hobby shop or racing friends can't resolve, give us a shout at *Radio Control Car Action*, and we'll see if we can chase down an answer for you. Questions should be of a technical nature and should be addressed to Troubleshooting, *Radio Control Car Action*, 100 East Ridge, Ridgefield, CT 06877-4606. We regret that, owing to the tremendous number of letters we receive, we can't respond to every one.

Bearing Blowout

I recently replaced my Traxxas Stampede's metal bushings with bearings. Now I blow out bearings all the time. I thought bearings were supposed to be an improvement.

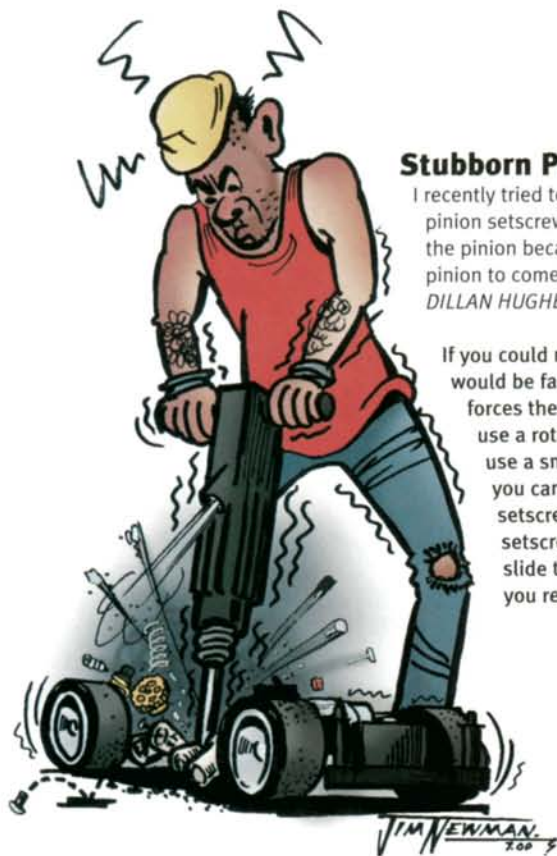
What's wrong?

JASON BEALS, Boston, MA

With bearings, preventive maintenance goes a long way. Your bearings probably require more cleaning than they're getting. If dirt gets into bearings, its grinding action soon ruins them. Take the bearings out of your truck and clean them with motor spray. Even better, pick up a bearing-cleaning tool (RPM and Robinson make good ones) and use that. Just remember to lube them after you've cleaned them because "dry" bearings will wear out quickly.

If you have been cleaning your bearings regularly, you might have a different problem. When bushings wear out, they tend also to wear out the parts around them, since they allow more "slop." When you put bearings into worn carriers, they might not fit as snugly as they should; there might be too much play. This movement translates into increased stress on the bearings, and that will lead to premature failure.

Replace the hub carriers and axles to reduce the chances of the bearings' failing. The Stampede's wheels are deeply offset and already stress the bearings enough; they really don't need any additional abuse. If, after following these tips, you still blow out bearings, RPM offers new rear hub carriers that have larger bearings that can handle more stress.



Stubborn Pinion Gear

I recently tried to change a pinion on my HPI Pro 2, and I stripped the pinion setscrew. Now the motor is stuck in the car, and I can't change the pinion because the hole on the motor plate is too small for the pinion to come through. What can I do? [email]

DILLAN HUGHES

If you could reach the gear with a pinion puller, your problem would be fairly easy to fix. A pinion puller slips onto the shaft and forces the pinion off—simple. If you don't have a puller, you can use a rotary tool with a cut-off wheel to slot the setscrew, then use a small, flat-head screwdriver to loosen the setscrew. If you can't do this, you'll probably have to drill out the setscrew. With a drill bit that's close in size to the size of the setscrew, carefully drill it out. Then you should be able to slide the pinion off. One of these suggestions should help you remove the pinion from the shaft.

Troubleshooting



Sticker Application

I have difficulty applying stickers to my touring-car body, especially getting the large stickers in the right spots. Are there any tricks that I can use to avoid ruining the stickers? [email]

ROBERT WAY

Stickers can make or break any paint job; if applied with patience, they can look great. Always cut stickers out with a sharp X-Acto blade; a sharp blade will allow you to cut cleanly and closer to the sticker. To smooth stickers around corners, you might have to make a relief cut or two to avoid making wrinkles. Spray "difficult" stickers, e.g., window trim, with a glass cleaner, and you'll then be able to slide them into the right positions. Once the cleaner has dried, the sticker's adhesive will hold it securely. Finally, heat the stickers with a hair dryer or a heat gun to remove any bubbles or wrinkles and to ensure you have a sweet-looking sticker job.

TIM NEWMAN.

Unequaled Precision

**RS4 Nitro
Vented
Flywheel**



Precision CNC machined from light-weight aluminum, this vented flywheel blows air over the clutch shoes, improving performance and extending shoe life.

ALL NEW ITEMS



TC3 Lite Aluminum Outdrives

Blue anodized
and 40%
lighter than
stock ball diff
outdrives.
RRP 1475

**Nitro Stampede
Hardened
Steel Spur
Gear With
Bearing**



Precision machined one-at-a-time from a single piece of steel and then hardened this 65T spur will last and last. A sealed Ball Bearing is included. RRP \$565

Unsurpassed Reliability

Outstanding Performance

Kyosho Ultima Blue Lightened Slipper Kit



The rear plate is hard anodized to reduce wear and the front plate is color treated. The front plate is designed to hold the slipper pad forcing the pad to slip on the rear plate. When pad shows sign of wear just flip it over for a new surface. Metal parts are CNC machined for a flawless fit. ARP 7515

TC3 Ultra
48P
Spurs



Tough, smooth and quiet. These new spurs are precision machined from heat-resistant plastic, to mesh flawlessly with our Pinions. 48P Ultra Machined Spurs are available in even numbers from 70T thru 80T, RRP 1670 - RRP 1680.

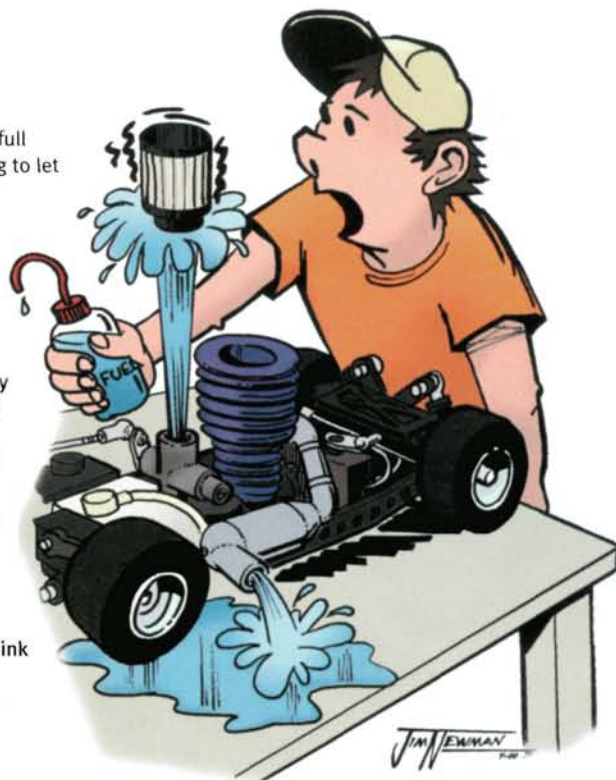
Flooded Engine

I have a Kyosho GS11X engine in my Kyosho Baja Beetle, and when I try to go at full throttle, the engine slows down and dies. To restart it, I have to unscrew the plug to let fuel out or the engine doesn't turn over. What is causing this problem?

GENE CURL, Williams, AZ

Two things can cause an engine to die at full throttle, and both have to do with the high-end needle valve.

- The engine is set too rich at the high end. This won't really harm it, and I suspect this is the cause of your problem. You have trouble at $\frac{3}{4}$ throttle, but instead of being starved of fuel, your engine simply cannot burn the fuel quickly enough, so it stalls out. This will also result in the engine's being flooded—the hydra-lock you described; there is too much fuel in the engine, and the piston cannot expel the fuel fast enough, so the engine jams. First screw the high-end needle in all the way; then unscrew it about $2\frac{1}{2}$ turns, and use this as a starting point to retune your engine; after that, you should be back up to full speed.
- The engine mixture is set too lean. When the engine is set to run lean, it will behave as it should up to about $\frac{3}{4}$ throttle, at which point it will be starved of fuel. This is very bad for an engine because fuel cools the engine, and the engine is likely to overheat if it is run too lean. It is possible to run it so lean that there isn't enough fuel at full throttle to run the engine, but as I noted, I think too rich is your problem.



Superb Quality

**T-Maxx/Nitro Rustler
Hardened Steel
Spur Gear With
Bearing**



Precision machined one-at-a-time from a single piece of steel and then hardened this 72T spur will last and last. A sealed Ball Bearing is included. RRP 8572

Rustler/Stampede/Bandit/Sport Nitro/Electric Sun Gears



CNC Machined from a from bar stock, these hardened, Sun Gears will last longer in your Traxxas machine. No serious racer should do without these gears. RRP 8500.

Intelligent Innovation

**Ultima GP-R
Hardened
Steel Idler
Gear**



Cut from solid steel stock, this gear is lightened and then hardened for super quiet precision and extra long life. RRP 7505

Thoughtful Design

**Ultima GP/EP-R
Hardened
Diff Gear**



Hard anodized, precision machined aluminum diff gear. RRP 7500



**1999 World Cup and
National Champion**

"I only care about performance, and that's why I run Robinson Racing gears and slipper clutches exclusively."

— Richard Saxton

**ALL
NEW
ITEMS**



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by Bob Hastings

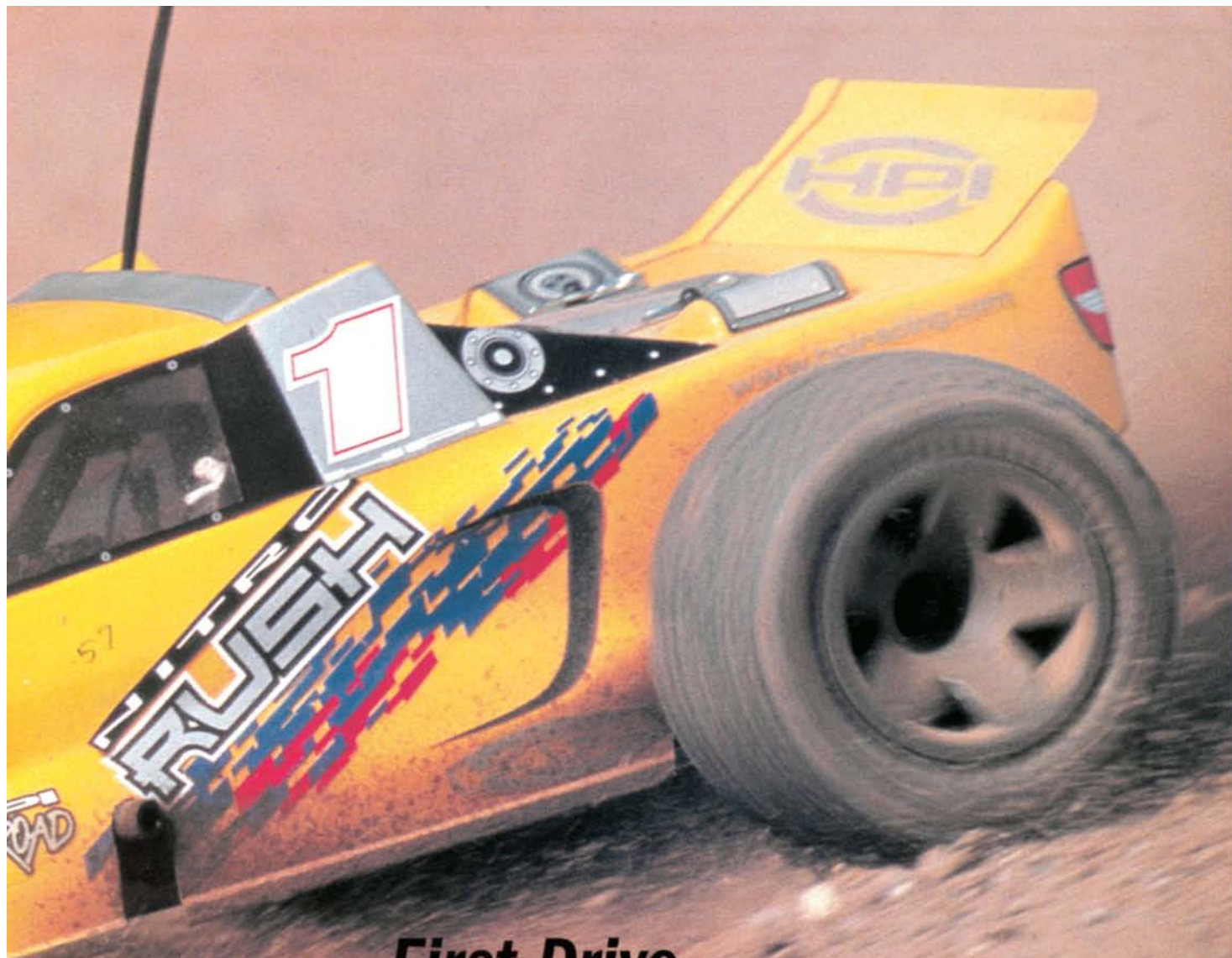
HPI* has a reputation for defining new RC vehicle categories (or redefining them). Its first car, the F1, brought articulated front suspension and mono-ball rear-pod technology to a class dominated by O-ring-supported T-plates and sliding kingpins. The RS4 came next, and—along with Yokomo's YR-4—it helped establish the paradigm for post-Tamiya TA02 touring cars. The first rally car to combine real off-road functionality with scale appearance also sprang from the RS4 gene pool, and most recently, the Nitro MT brought new features and performance to 4WD nitro trucks—a category that was previously populated by buggy conversions.

Although something entirely new for HPI, the Nitro Rush fits into a very well-established category: 2WD nitro "stadium" trucks. From the excellent Traxxas and DuraTrax RTRs to the race hardware of Losi, Associated and Kyosho, RC enthusiasts already have plenty of good stuff to choose from. To break into this market, HPI had to come up with something truly different. With its enclosed chassis and angular body, the Nitro Rush truck, officially dubbed the RS2 ST, definitely is different, and there has been plenty of buzz about it. Now, we'll find out whether the Rush was worth the wait.



Inside the Nitro RS2 ST

HPI NI



First Drive

Although our Nitro Rush was a preproduction sample and did not have the final suspension settings dialed in, we took it for a test spin to get a feel for its capabilities.

The .15FE fired up immediately and delivered very good power (after owning a few FE-equipped cars, I'm convinced "FE" stands for "friendly engine"). The addition of a low-end needle would allow some tweaking to enhance idle to mid-range response, but the factory setting is definitely acceptable.

We had the most fun drifting through turns with the tail out and generally pounding on the truck on dirt and grass, and we threw in some high-speed pavement runs for good measure. The disc brake was more than adequate, and the steering was responsive, yet forgiving. The Rush will push if you crank the wheel over abruptly at top speed, but it turns in nicely with some throttle control. At low speed, there's plenty of wheel travel to U-turn it out of trouble. Although the Rush is aimed more at the enthusiast segment of the hobby than at all-out racers, we're confident that the truck can be dialed in for competition. If the production trucks behave like our test sample, the Rush should be a fast, fun machine with real performance potential.



NITRO RUSH



The slipper clutch is built in to the 56-tooth spur gear and is driven by a 13-tooth clutch bell. Underneath, you'll find the same 2-shoe clutch as is used in the Nitro RS4 series.



The slipper pad fits the notched rear of the concave spur gear. Note the shallow nubs that are used to key the slipper plate to the plastic hub; we were concerned about their durability, but we didn't have any problems.



Note the molded wells for the fuel tank, throttle servo and receiver; they are well away from any residue that might spin out of the engine's nose bearing. A drip channel prevents spilled fuel from contaminating the electronics.



The molded, one-piece top deck has a built-in compartment to protect the receiver. The hatch cover clips into place to keep out dirt and moisture.

KIT FEATURES

- **Chassis.** Like HPI's other nitro vehicles, the Rush uses a 2mm, purple-anodized, 6061 T-6 aluminum chassis. This time around, the material is formed into a fresh, wedge-shaped tub chassis. The tub's sides run from behind the front suspension all the way back to the flywheel, gradually tapering down to the rear suspension cut-outs. The chassis' front has built-in kick-up and is fully countersunk. The rear end is reinforced by an extended, aluminum-plate

SPECS

SCALE 1/10
ESTIMATED STREET PRICE \$290 RTR, \$235 assembled without radio

DIMENSIONS
Wheelbase 11 3/8 in. (289mm)
Width 13 in. (330mm)

WEIGHT
Total, RTR 71.04 oz.

CHASSIS
Type 6061 T6 purple-anodized aluminum plate

DRIVE TRAIN
Type Enclosed gearbox
Primary Clutch bell/spur gear
Drive shafts Steel dogbones
Differential Gear
Slipper clutch HPI spur-mount single disc
Brake Single plastic disc
Bearing type Shielded

SUSPENSION
Type Independent lower A-arm with fixed-length camber link
Damping Composite, oil-filled, coil-over shocks

WHEELS
Type One-piece HPI 5 spoke, gunmetal gray

TIRES
Type (F/R) HPI 5-rib/HPI off-road X-pattern

ENGINE AND ACCESSORIES (INCLUDED)
Engine HPI 15FE
Carb Single-needle rotary type
Manifold Cast with cooling fins
Pipe Dual-chamber welded plastic with rubber header

RADIO GEAR (INCLUDED)
Transmitter/receiver HPI TX-2/RX-1
Steering/throttle servos HPI SX-1

engine mount and a Y-shaped brace that ties the rear shock tower to the transmission. The one-piece upper deck is the most innovative part: it fits closely to the tub, effectively sealing it as it provides additional stiffness. Wells molded in the upper deck hold the fuel tank, receiver (neatly hidden behind a trap door) and steering servo. If any fuel spills during a fill-up, it's channeled out through a hole in the bottom of the chassis. This, combined with the sealed chassis/upper deck construction, should help the Rush stay cleaner than other trucks—at least fuel-residue-wise.

• **Drive train.** The Rush features a 13-tooth clutch bell that drives a 56-tooth spur gear with an integral slipper clutch. The single-disc slipper feeds a 3-gear tranny with a gear differential, and steel dogbones stretch



We prefer fiber brake discs to the Rush's plastic unit, but its thickness should help it outlast the typical plastic disc. The steel calipers are actuated by an aluminum cam, just like those on the Nitro RS4 vehicles.



With the upper plate removed, the chassis is easy to clean. It takes about a minute to disassemble the Rush to this point.

across the long suspension arms to reach the rear hubs. A plastic disc brake floats on a plastic hex hub and is squeezed by steel calipers. All rotating parts, including the front wheels, have shielded bearings.

SUSPENSION AND STEERING

The race-inspired suspension has extremely beefy H-arms held by hinge pins with threaded shoulders for a no-E-clip assembly. The front and rear shock towers are molded plastic and well reinforced, and the camber links are fixed-length plastic pieces. HPI's proven plastic-body, oil-filled coil-overs handle damping; in RTR trim, they are filled at the factory and ready for action.

In the steering department, an inverted servo tugs the steering knuckles directly—no bellcranks. Thankfully, HPI had the foresight to stamp a hole in the chassis to allow easy servo-saver centering. Our test mule truck was one of the final preproduction units, and it was equipped with steering linkages constructed of threaded rod. The production Rush will have steel turnbuckles.

• **Engine and accessories.** The Rush is powered by HPI's Nitro Star single-needle .15FE engine (also used in the 4WD MT), and it's a solid performer. Its plastic tuned pipe delivers much better performance than a restrictive, RC airplane-style muffler, and it looks cool, too. Less cool (in both senses of the word) is the engine's cast, vertical-fin heat-sink head. Most other "sport" nitro trucks include an anodized cylinder-type head that cools more efficiently.

• **Body, wheels and tires.** The RTR Rush will include a painted and trimmed body like the one shown here. The included decals are similar to those supplied with the Baja Beetle version of the RS4 MT, and they're a good match for the yellow shell. The body's rear roll cage area is cut out to allow easy engine access, and the radio system's on/off switch is neatly held in the opening by a molded stalk fixed to the rear shock tower.

The rolling stock looks as unique as the body. HPI's attractive new 5-spoke Type F5 wheels are



A plastic, dual-chamber, tuned pipe is part of the Rush's power package. According to HPI, the pipe's performance rivals that of the pricier aluminum version. The aluminum engine-mount plate is extended and channeled to reinforce the chassis' rear end.

molded in gunmetal-gray plastic, and the firm-compound X-pattern rear tires and 5-rib fronts look (and feel) like a good compromise between off-road traction and on-road wear. It's your job to glue them to the rims before you get rolling; it's one of the few assembly steps HPI leaves to buyers.

*Addresses are listed alphabetically in "Featured Manufacturers" on page 200. ■

RUSH DELIVERY

HPI plans to offer the Rush as an RTR with an HPI TX-2 radio set (it's a re-badged Airtronics Blazer). The transmitter features an LED battery meter and adjustable steering rate, and



its Blade Runner-look case is very comfortable to hold. The included "standard" servos are good for about 40 oz.-in. of torque. If your 2-channel radio collection overflows, you can also buy the truck without a radio system.

I have a feeling most Rush buyers will be in a hurry (or a rush, you could say) to hit the dirt and will be psyched to skip the build-up, but if you prefer to assemble it yourself, you'll be disappointed to know that the chassis, for now, is only sold assembled (although a ground-up manual is included).

For the RTR version, the only items you'll need to pick up are 12, AA batteries for the radio gear, nitro fuel (15 or 20 percent is best) and a glow igniter.



1st LOOK

TAMIYA TA04

by Peter Vieira

The TA series gets belted

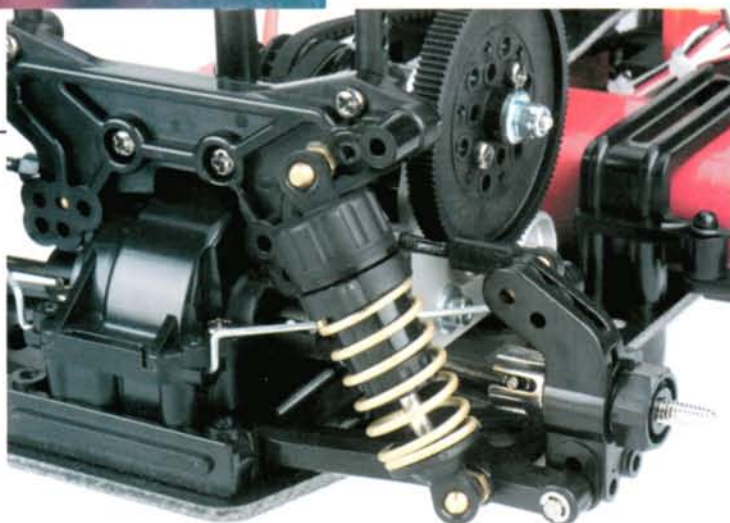


Along with off-road vehicles and monster trucks, touring cars owe their success as an RC category to Tamiya*. Without the original TA01 and TA02, we would not have the vibrant touring-car market that we enjoy today. But, like the Frog and Blackfoot that launched the off-road and monster-truck segments only to be eclipsed (racing-wise) by other brands, Tamiya's Manta Ray-based TA series also found strong challenges in the touring-car class. The TA03 was an inspired answer to the purpose-built racecars that emerged to fill the market Tamiya created, but despite notable racing successes, touring-car aficionados decided that 2-belt cars were the competition standard. In many racers' eyes, the single-belt, dual-gearbox TA03 simply wasn't a contender.

Tamiya responded with the TRF 414X—a limited-production dual-belt

car that could hang with anything on the track but came with a big-dollar price tag. Tamiya proved (again) it could build a capable competition touring car, but then an "everyman" version was needed. That brings us to the TA04—a TA chassis that captures the essence of the 414X but renders it in plastic and fiberglass instead of graphite and aluminum. Can the car still hang in its more affordable form, or is it just another touring car?

Tamiya's tried-and-true CVA plastic shocks reappear on the TA04, but you'll be hard-pressed to find any other recycled parts. If the two-position hubs, swaybar and numerous camber-link holes are any indication, the new car should be highly tunable.



The front arms extend past the hub carriers and are capped to reduce flexing. Adjustable links permit camber and toe changes (with a little disassembly).



The steering bellcranks use a one-piece molded drag link instead of a sloppy Z-bend, and the ball bearings keep the action smooth. There is only one mounting option for the steering links on the bellcranks, so Ackerman is a no-brainer.



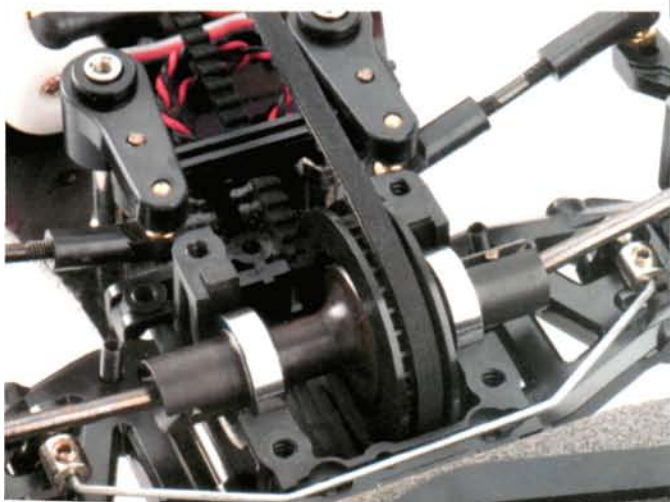
An aluminum motor plate is screwed to the plastic center bulkhead, which is supported by a pair of aluminum standoffs and tied to the upper chassis deck.



Dual belts, double-deck chassis, transponder mount ... looks as if the TA04 is ready to race. A saddle-pack chassis will almost certainly be available, but the stock car is equipped only for stick packs.



A bearing-supported tensioner is provided for the front belt, but the rear belt is not adjustable.



Say goodbye to the hefty ball diffs of the old TA cars; the TA04's diffs are slim and smooth. Steel outdrives and dogbone axles are standard.

TA04 FEATURES

- **Chassis.** The TA04's chassis is "FRP" in Tamiya parlance—fiber-glass to you and me. Its double-deck construction is standard touring-car stuff and uses the usual aluminum standoffs and plastic bulkheads to add rigidity. In stock form, the chassis accepts stick packs only; it's a safe bet that a slotted version will follow in both FRP and graphite versions. A built-in transponder mount bolted to the upper deck announces the car's racing intentions, and a thick foam bumper with upper support is included.

- **Drive train.** Like other dual-belt tourers, the TA04 has its layshaft mounted above the motor for belt clearance over the battery pack. The car has full-time 4WD but appears ready to accept a one-way front pulley as a hop-up. The layshaft spins a pair of 4mm belts to power the front and rear ball differentials, which are supported by ball bearings. The front belt is tensioned by means of a pair of bearings on an adjustable arm that's mounted on the top chassis deck, but the rear belt is fixed. There's no external tensioner or a diff eccentric to adjust. The diffs are outfitted with steel outdrives, and dogbones get power to the drive axles, which also turn on bearings. Viewed from above, the TA04's drive parts seem to be positioned identically to the 414X's; the front dogbones sweep forward slightly, and the rears are perpendicular to the diff pulley.

- **Suspension and steering.** Lower H-arms with adjustable camber links are standard and are a great improvement on the usual fixed links. Pivot-ball designs may be the current rage, but I'm glad to see Tamiya stick with an independent hub carrier/steering-knuckle setup and good old-fashioned hinge pins and kingpins. All the parts are new to the TA04; this is not a "parts bin" car.

Not new, but welcome, are the familiar plastic dampers that

have graced Tamiya tourers since the TA01. These bladder-type, double-O-ring shocks are often replaced for glamour but are more than competent for racing. The shocks are fixed to molded shock towers that offer two mounting options up front and three in the rear. The front and rear suspension arms each have two shock-mounting holes. Tamiya was more ambitious with camber-link mounting options; there are four front possibilities and five rear, plus two holes per rear hub.

Front and rear swaybars are also standard but don't seem to be adjustable (Tamiya will no doubt offer color-coded swaybars of various thicknesses to adjust front/rear traction).

To steer the TA04, a pair of bellcranks turn on aluminum standoffs and are held high against the upper deck for belt clearance. The bellcranks are bearing-supported, and that's a nice feature; Tamiya would have been excused for spec'ing bushings here. Like the camber links, the steering tie rods are threaded for adjustment, albeit with some disassembly.

The most notable element of the TA04's suspension and steering is slop: there isn't any—at least, none worth mentioning when compared with other class-leading tourers. The TA04 is unquestionably the most solid sedan to come from Big T.

IN THE BOX

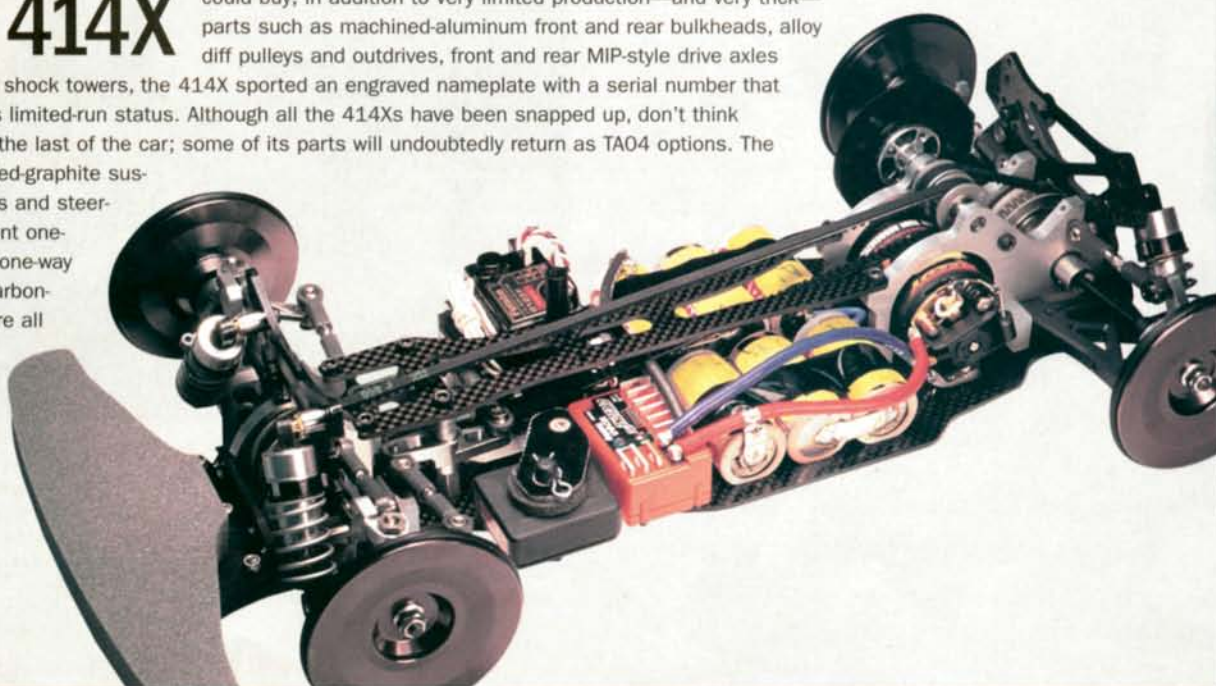
At press time, Tamiya has plans to offer the TA04 as a chassis kit without body, motor, or the usual 3-step speed control. Racers won't miss any of these items, although enthusiasts will probably yearn for a Tamiya body and decals (get 'em separately, guys). Later, a TRF version may be offered, but it will probably be less exotic than the 414X; I would expect the expensive aluminum front and rear bulkheads and alloy diffs to be option-only items.

**Addresses are listed alphabetically in "Featured Manufacturers" on page 200. ■*

Before the TA04 the 414X

and graphite shock towers, the 414X sported an engraved nameplate with a serial number that confirmed its limited-run status. Although all the 414Xs have been snapped up, don't think you've seen the last of the car; some of its parts will undoubtedly return as TA04 options. The 414X's molded-graphite suspension arms and steering parts, front one-way diff and one-way pulley and carbon-fiber parts are all prime contenders.

This car should look familiar; we gave it the "First Look" treatment in the September '99 issue. The 414X was basically a prototype car you could buy; in addition to very limited production—and very trick—parts such as machined-aluminum front and rear bulkheads, alloy diff pulleys and outdrives, front and rear MIP-style drive axles



TRACK TEST

1/10-SCALE ELECTRIC
1/10-SCALE NITRO

Since the early days of the RC10, there has been a deep aftermarket for Associated* vehicles, and the number of add-on options has only increased over the years. GPM, Fantom, Trinity, Lunsford, MIP ... the list of companies that support the RC10 series would probably fill this page. Associated itself got into the act when it added the Factory Team line of parts to its catalog; a line that began with blue-finished titanium tie rods and has since grown to include molded graphite parts and plenty of aluminum widgets.

Many racers reach for the optional parts when they build their cars instead of waiting for an opportunity to replace a worn or broken part, or until the need arises to increase the performance or durability of their machines. With these racers in mind, Associated has released "Factory Team" versions of the RC10GT and RC10B3. Basically, these are "Team" kits with a bunch of extra goodies from the Factory Team line (plus—in the case of the B3—a suspension geometry tweak). We built both machines to see what they have to offer in terms of performance and style.



Associated Factory Team RC10GT and RC10B3

Just like the pro's: we drive Associated's
factory rides by Peter Vieira & Greg Vogel

PHOTOS BY WALTER SIDAS





In keeping with the Factory blue theme, the GT includes a blue manifold and pipe. The manifold is specific to pull-start or non-pull-start engines, depending on which kit you buy, so be sure you have a power plan before you take home a GT.



Above: graphite shock towers are part of the Factory Team package. The scallops inside the GT rear tower are there to hold an on/off switch.



Left: the new GT chassis is shared by the Team and Factory Team versions of the truck. With input from the team drivers, Associated tuned the chassis for greater rigidity than the old tub (note the rear bracing and folded sides), with enough "good flex" for forgiving handling.

building & setup tips

The Factory Team GT and B3 assemble like any other GT and B3, and thanks to the Improvements Associated has made to its manuals, building the kits is practically foolproof ... but here are some additional tips to help you along.

BUILDING

Cutting the crank. If you're selecting an engine just for the GT, check whether the manufacturer offers it with a precut crank. This is the easiest way to ensure a perfect installation. If you already have an engine, or the one you wish to use is not sold precut, follow the instructions closely when you cut the crank. Remember: measure twice—cut once. Use a high-quality rotary tool (Dremel still makes the best), and install a fiber-reinforced cutting wheel. Make sure it's fiber-reinforced; not all wheels are! Strap on a pair of goggles or safety glasses before you begin.

Front and rear shock tower assembly. I like to apply thread-locking compound to the ball-end nuts. I can't say that the nuts will loosen if you don't do it; then again, I've never lost a ball end.

Spur-gear fit. The included molded spur gear was only slightly out of true, but it wobbled enough to rub the right rear arm mount. The barely perceptible drag was nothing to worry about, but I can't stand the thought of something rubbing. I installed a Robinson* steel gear for greater precision and durability.

Engine-mount installation. Apply thread-lock to all the screws that thread into the aluminum mounts.

Brake cam. Use the open end of a small nut driver to press the brake-cam clip into place (the included, plastic 4-40 nut driver works fine for this). Press the clip against the brake bracket so there is no free play; you don't want the cam to dance on the brake bracket and cause electrical "noise."

SETUP

I didn't have to do any setup work on the Factory Team GT; I just built it meticulously, and it was dialed. The kit setup is a good starting point, but the Pro-Line tires were definitely major players in the setup package; the Bow Tie/Edge combo is great for bumpy, "soft" tracks, and that's exactly what I raced on.

Not every track will be a perfect match to the GT, however, and you will have to wrench eventually. Do yourself a favor—get the RC10GT Complete Tuning Guide; it's the best \$4 you'll spend this season. The GT's manual has plenty of good tuning info, but if you're looking for a factory racer's bible, the Tuning Guide is it.

YOU'LL NEED ■ 2-channel transmitter and receiver ■ Steering and throttle servos ■ Receiver battery ■ Fuel ■ Polycarbonate-compatible paint ■ .12 engine (slide or rotary carburetor) ■ Tire glue ■ Thread-locking compound

BASIC FEATURES

No matter which GT (RTR, Team, or Factory Team) or B3 (Basic, Team, or Factory Team) you buy, the basic features of the vehicles are the same (and if you've been in the hobby for a while, you know them by heart). For those of you who are less familiar with the GT and B3, here's an update:

RC10GT

CHASSIS

The latest GTs feature plate-type chassis instead of the recently retired stamped-aluminum tub design. The RTR version differs slightly from the Team/Factory model, but the core elements are the same; the plate features folded sides and a built-in, kicked-up nose plate supported by aluminum "nose tubes" and triangulated standoffs. In the rear, a large casting integrates the engine mounts with braces that stiffen the chassis plate considerably compared with the original tub.

DRIVE TRAIN

The GT transmission is Associated's Stealth design, which incorporates a very smooth ball differential, single-disc slipper clutch and disc brake. MIP CVD drive axles are standard equipment, and naturally, everything spins on bearings.

SUSPENSION

The GT's suspension is archetypal RC10, with lower A-arms and turn-

buckle upper links. Team shocks feature hard-anodized bodies with Teflon pistons and plastic caps, and clip-on spacers take care of spring preload setting. Fiberglass shock towers anchor the dampers on the RTR and Team kits, while the Factory model gets racier graphite parts. What about molded-graphite parts, you ask? Keep waiting; Associated has never offered them for the GT.

ENGINE AND ACCESSORIES

An engine is not included with the GT (unless you buy an RTR), but all the support gear is in the box; aluminum pipe and manifold (in blue, no less), pipe mount, two-shoe clutch, engine mounts, fuel tank, fuel tubing and throttle linkages are supplied.

What makes it a "Factory" Team?

FACTORY TEAM GT UPGRADE

	REPLACES
Blue titanium turnbuckles	Steel turnbuckles
Blue-anodized header and pipe	Natural-finish parts
Graphite shock towers	Fiberglass shock towers
Blue front axles	Natural-finish front axles
Blue wheel nuts	Natural-finish wheel nuts
Blue aluminum screw kit	Black steel screws
Unobtainium shock shafts	Plated steel shafts
Blue bellcrank shafts and tension nut	Natural-finish parts
Blue disc-brake hub	Natural-finish hub

BENEFITS: the biggies here are the titanium turnbuckles, Unobtainium shock shafts, graphite shock towers and aluminum screw kit. The turnbuckles won't improve performance or adjustability over the Team kit's steel pieces, but the titanium parts are much stronger (and a little lighter, too). The Unobtainium shock shafts are coated to minimize friction and resist scuffing for smoother shocks that last longer between rebuilds. The graphite shock towers are more rigid than the fiberglass Team pieces, and the Factory Team kit's blue screws trim a few grams from the truck. The rest of the Factory Team parts are eye candy, with no performance advantage over the natural-finish Team kit pieces—but then, looking fast and being fast go hand in hand.

PERFORMANCE

Peter on the RC10GT:

Although we test racecars exclusively on racetracks, we don't always shoot our photos on tracks; sometimes, we shoot on a nearby baseball diamond where the light is perfect, and the dirt roosts nicely. Since the dirt is dry and silty, most cars don't hook up on it even if they do handle well on a real racetrack. When the Factory Team GT hit this stuff and actually felt pretty good, I knew it was going to be a real treat to drive on a freshly watered racetrack. After the photo shoot wrapped, I checked the engine screws for tightness, blew the car off and considered myself ready for the weekend of racing to come.

Fast-forward to Sunday and three full heats of gas trucks at Xtreme R/C in New Milford, CT. As "special" as the Factory Team GT was to me, it was just another GT at Xtreme; everyone else had their own blend of aftermarket options, so my GT had no technological advantage. If anything, it seemed mellower than the other GTs, NXTs and Ultimas on the track. My truck's O.S.* CV engine didn't throw oh-my-God roosts down the straight like the Picco- and Rossi-powered rigs, and since the chassis was so planted, it didn't show speed in its attitude. If anything, the truck felt very "electric," and that had me feeling confident. Confidence is a good thing.

In each qualifier, I had no problem outpacing some well-equipped trucks that had more horsepower. I occasionally lost ground in drag races on the long straight, but the Factory Team was able to put down power in the corners like nothing else on the track. Although I had less horsepower, I was able to use all that I did have. The CV's reliability was a huge bonus as well; gas races can be lost on a flameout, but my CV never even sputtered. I wasn't a match for more skillful drivers (no technological advantage can bridge the skills gap), but the Factory Team GT succeeded in distilling every bit of ability I have into a good on-track showing. I suppose I shouldn't have expected anything less from a full-option version of such a proven vehicle, but the GT drove even better than I hoped. After all these years, the RC10GT still gets the job done.

SPECS

SCALE 1/10
RETAIL PRICE \$445
STREET PRICE \$310

DIMENSIONS

Wheelbase 10.5 in.
(267mm)
Width 12.62 in. (321mm)

WEIGHT

Gross, RTR 62.72 oz.

CHASSIS

Type 6061-T6 aluminum plate, blue-anodized

DRIVE TRAIN

Type Enclosed gearbox
Primary Clutch bell/spur gear
Drive shafts MIP CVD
Differential Ball
Slipper clutch Associated
ATC
Brake Single-fiber disc
Braking type Full rubber-sealed bearings

SUSPENSION

Type Independent lower
A-arm w/titanium
turnbuckle upper link
Damping Hard-anodized,
Teflon-coated oil-filled coil-
over shocks

WHEELS

Type One-piece dish, white

TIRES

Type (F/R) Pro-Line M3
Edge/Pro-Line M3 Bow Tie

ENGINE AND ACCESSORIES

Engine O.S. 12 CV w/rotary carb (not included)
Manifold Aluminum bolt-on, blue-anodized
Pipe Aluminum tuned-type, blue-anodized

ELECTRONICS

(not included)
Transmitter KO Propo*
Mars EX-1
Receiver KO Propo KR-297FZ
Steering servo Hitec* HS-945MG
Throttle servo Hitec HS-525BB

LIKES

- One-stop shopping—all the trick stuff is in the box.
- Still highly capable on the racetrack, especially in Factory trim.
- New chassis outperforms the old tub.

DISLIKES

- Spur gear rubbed the rear arm mount.

TEST GEAR

- O.S. 12 CV engine.
- Hitec HS 525BB throttle servo.
- Hitec HS945MG steering servo.
- KO Propo Mars transmitter, and KR-297FZ receiver.
- Mugen* 900mAh receiver pack.
- Byron* Race Fuel 20% nitro.
- Pro-Line Bow Tie and Edge tires (included).



We hope you won't be showing off these blue parts too often (marshall!). The Factory Team B3 substitutes anodized tail and nose plates for the standard black parts.

Below left: blue motor plate, titanium turnbuckles, CVDs ... the Factory Team package in full effect. The Stealth tranny remains the benchmark for off-road transmissions. Below right: like the GT, the B3 gets a graphite shock tower. The Team shocks look stock, but eagle-eyed readers have probably already spotted the gray finish of the Nobtanium hard-coated shock shafts.



YOU'LL NEED ■ 2-channel transmitter and receiver ■ Steering servo ■ Electronic speed control ■ Motor ■ Polycarbonate-compatible paint ■ Tire glue

building & setup tips

BUILDING

Step 1 suggests adding thread-lock to the setscrews, but the manual states that thread-lock is not included. Don't run out to buy thread-lock; you can use the MIP thread-lock from the CVD bag on the setscrews. Note, however, that you can't reuse the one-time-use thread-lock container, so skip ahead and build the CVDs before the tube of thread-lock dries out.

Use thread-lock on the ball studs. As suggested for the GT, it's a good idea to apply thread-locking compound to the ball-stud nuts that go through the front shock tower—just to be on the safe side.

Arm mounts. Don't forget the washer that goes underneath the rear arm mounts. I'll admit it; I forgot to put them in, and I had to redo the step.

Diff assembly. Note the direction of the diff screw and the diff case it goes into. You don't want to flip-flop the diff; it might loosen in a race.

Ball cups. If the ball cups seem to thread very tightly onto the turnbuckles, lube the threads with a little grease or soap. You don't want the cups to pop off when you adjust the turnbuckles later.

SETUP

I've seen plenty of racers show up at the track with a brand-new car and a setup that's nowhere near what the manual suggests—big mistake. Like other race-oriented companies, Associated put in countless hours of testing to come up with a standard setup that will work on a variety of tracks. I ran the kit setup and, like the GT, the B3's Bow Tie tires hook up in soft, loamy stuff. The stock setup is a great starting point for future adjustments, but it is a bit mild if you prefer aggressive, on-power steering. Associated also gives Mark Pavidis's standard setup in the back of the manual and offers a "Complete Tuning Guide" with tons of tips to help you get dialed in to your specific track.

To increase the on-power steering of my B3, I refilled the rear shocks with 35WT fluid (replacing the 25WT kit oil) and raised the rear ride height so the dogbones were just slightly above level. The heavier damping reduces squat when accelerating out of turns, and the taller rear ride height prevents the rear of the chassis from dipping below level when it does squat. This helps keep the front end digging in.

RC10B3

CHASSIS

Since the introduction of the B2, the Associated buggy platform has remained unchanged. The composite tub with channeled battery slot is a sturdy platform for the buggy's vital components, and the Factory Team kit graphite version is an ultra rigid base to build on.

DRIVE TRAIN

Stealth tranny—that's all that needs to be said. This bulletproof transmission is supersmooth, and if built and adjusted properly, it can go many races without a rebuild. It features ball bearings to support the gears within the composite case, and a large-diameter slipper clutch bolted to the top shaft protects the gears from damage.

SUSPENSION

Here we find a significant change from the other B3 kits; the Factory Team sports a new rear shock tower. The new part was developed before the world championships and used by Masami Hirotsuka to win the 2WD title. The Factory Team shock tower is slightly lower than the

original B3 but retains the same geometry. This allows the suspension arms to drop lower at full extension. The new tower also allows the new Pro-Line Deja Vu II to sit lower on the tower. The rest of the suspension remains unchanged with the exception of the rigid graphite suspension arms.

What makes it a "Factory" Team?

FACTORY TEAM B3 UPGRADE

	REPLACES
Blue titanium turnbuckles	.Steel turnbuckles
Carbon-fiber front tower	.Fiberglass tower
Graphite rear tower	.Composite tower
Blue in-line front axles	.Natural-finish in-line axles
Blue wheel nuts	.Natural-finish nuts
Blue screw kit	.Steel screws
Blue aluminum steering tube and nut	.Natural-finish parts
Unobtainium shock shafts	.Plated shock shafts
Graphite suspension arms	.Composite arms
Graphite tranny brace	.Composite brace
Blue kick-up plate	.Black plate
Blue rear plate	.Black plate
Blue motor mount	.Black motor mount
Ball-bearing steering	.Plastic bushings
Graphite battery strap	.Composite strap
Blue aluminum wing buttons	.Plastic buttons

BENEFITS: the molded-graphite components and carbon-fiber front shock tower are the big draws here; they are a tad lighter and a lot more rigid than the stock parts. The gobs of blue goodies are also important. The blue motor plate, rear chassis plate and screws don't increase performance (although the screws are slightly lighter), but they do make the car look damn good. Ball-bearing steering is a nice touch, as (in my experience) the plastic bushings tend to hold dirt and may bind unless they are cleaned regularly. The Unobtainium shock shafts are also wear-resistant and require less attention to maintain smooth shock action.

PERFORMANCE

Greg on the RC10B3:

I've had plenty of wheel time with stock B3s, so I came to the Factory Team version with a highly developed sense of what a well-tuned B3 can do. When my Factory car hit the dirt at Xtreme R/C, it felt pretty much the same—and that's not a bad thing. Both are excellent race buggies. The Factory Team planted itself when I punched the throttle, and it remained stable through the rough portions of the track. Turning was also typical B3-style: tons of steering off-power but less on-power. This makes the car forgiving and easier to drive for most drivers, but for my aggressive driving style, the front feels too light, and I have to mash on the brakes to bring it back into a corner. That shaves tenths of a second off a lap, and you know those tenths will add up at the end of a race. To tighten the on-power steering, I increased the rear damping and raised the rear ride height (see the "Building and Setup Tips").

Jumping is a breeze; the B3 took off and landed steady and under control. The car can easily be manipulated in the air with throttle and brake input to land nose first whenever necessary.

Overall, the Factory Team B3 is all about glamour (blue stuff) and increased durability and rigidity (graphite parts, titanium turnbuckles) rather than significant performance changes. Blue stuff is definitely attractive; many racers gathered to check out my car and ask who made the parts. If you want to show off in the pits, the Factory Team B3 is the car to have.

TEST GEAR

- Reedy Fury 12x2 motor.
- Reedy Zappers 2000mAh matched battery pack.
- LRP IPC 7.1 ESC.
- KO Propo Mars transmitter.
- KO Propo 2123 FET servo.

FINAL THOUGHTS

Is it really surprising that the Factory Team RC10GT and RC10B3 are top-flight performers on a race-track? In addition to full hop-up treatments, both machines benefit from years of development under the toughest race conditions and constant revisions at the hands of some of RC's best drivers and engineers. True, you'll pay more for the Factory Team

treatment, but if you're the kind of guy who already has titanium turnbuckles and a screw kit on the workbench before your new kit is even out of the shrink wrap, then you'll wind up *saving* money. Associated is known for good stuff, and this is the best stuff the A-Team has to offer.

**Addresses are listed alphabetically in "Featured Manufacturers" on page 200. ■*

SPECS

SCALE 1/10
RETAIL PRICE \$320
STREET PRICE \$225

DIMENSIONS

Wheelbase 10.62 in.
(270mm)
Width 10 in. (252mm)

WEIGHT

Gross, RTR 53.28 oz.

CHASSIS

Type Molded composite

DRIVE TRAIN

Type Sealed 3-gear Stealth transmission, 2.4:1 ratio
Primary Pinion/spur gear
Drive shafts MIP CVD
Differential Adjustable ball
Slipper clutch Large-diameter friction-type
Bearing type Fully sealed ball bearings

SUSPENSION

Type Independent lower A-arm w/titanium turnbuckle upper link
Damping Hard-anodized, Teflon-coated oil-filled coil-over shocks

WHEELS

Type One-piece dish, white (2.2 in.)

TIRES

Type (F/R) Pro-Line M3 Edge/Pro-Line M3 Bow Tie

ELECTRONICS (not included)

Transmitter KO Propo Mars EX-1
Receiver KO Propo KR-297FZ
Steering servo KO Propo PDS-2123
Motor Reedy* 12x2
Battery 6-cell Reedy Zappers
ESC LRP* IPC Digital V7.1

LIKES

- Blue stuff—lots of it.
- Graphite stuff—lots of it.
- Ready for competition, straight out of the box; other aftermarket accessories are not needed to improve performance.

DISLIKES

- If I have to complain about something, it's a parts glitch: one of the ball studs didn't have threads. If I hadn't had a spare, it would have meant a trip to the shop.

**TRACK
TEST**

1/8-SCALE NITRO

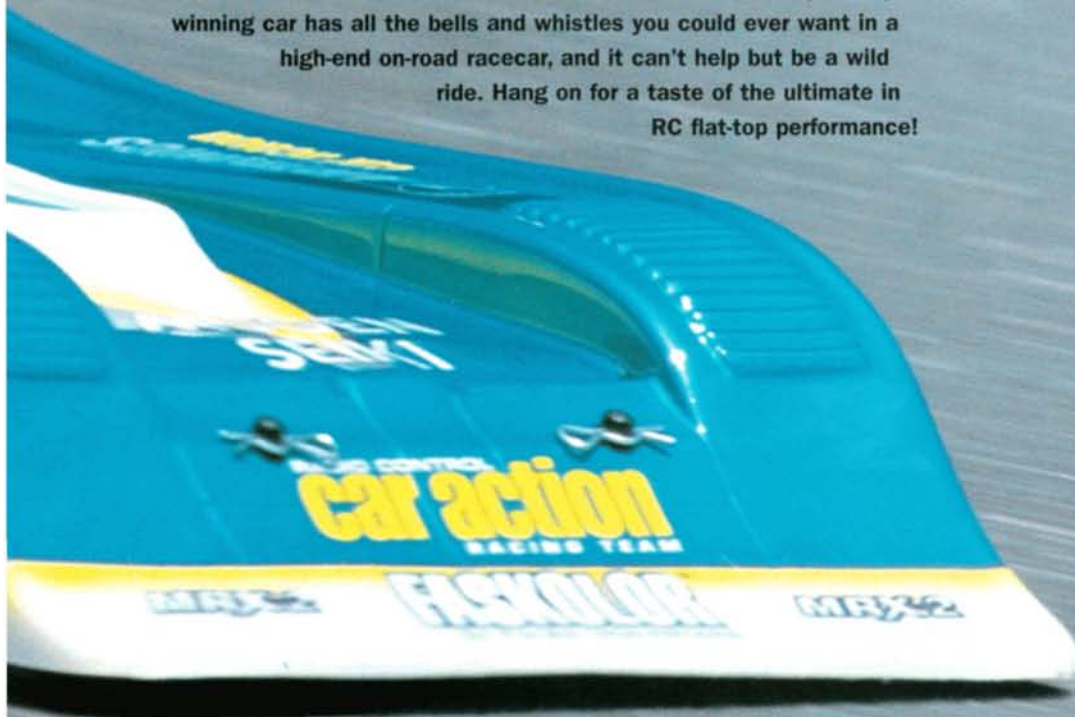


Mugen MRX-2

World-class, super-fast and easier to drive than you think

by Kevin Hetmanski

Grab yourself a chair and have a seat; you are about to enter the world of $\frac{1}{8}$ -scale on-road racing. Often referred to as "the F1s of RC," $\frac{1}{8}$ -scale on-road cars represent the ultimate in RC performance. The low-slung, stiffly suspended, .21-powered, 4WD cars break 65mph without breathing heavily, and they handle like nothing else on pavement. Mugen*, well-known for $\frac{1}{8}$ -scale off-road hardware, is also a dominant force in on-road with its MRX-2. This world championship-winning car has all the bells and whistles you could ever want in a high-end on-road racecar, and it can't help but be a wild ride. Hang on for a taste of the ultimate in RC flat-top performance!



DATA CENTER

VEHICLE TYPE 4WD, .21-powered, on-road competition

BEST BUYER Advanced racers who are very competitive and feel the need for speed

KIT RATINGS (poor, satisfactory, good, very good, excellent)

Instructions Good

Parts fit/finish Very good

Durability Too early to evaluate

Overall performance Very good

SPECIFICATIONS

Scale $\frac{1}{8}$

Street price \$480

DIMENSIONS

Wheelbase 11.75 in. (298mm)

Width (F/R) 9.9/10.3 in. (252/262mm)

WEIGHT

Gross, RTR 82.8 oz. (2,350g)

CHASSIS

Type Double deck

Material Carbon fiber/aluminum

DRIVE TRAIN

Type 4WD belt

Primary 2-speed

Drive shafts Dogbones

Differential (F/R) Solid shaft w/one-way/solid shaft

Clutch Centax

Bearing type Rubber sealed

SUSPENSION (F/R)

Type Double wishbone

Damping Oil-filled, coil-over shocks

WHEELS

Type Molded, one-piece, quick-change 5-spoke

TIRES

Type Foam

POWERPLANT

Engine Rex 7-port on-road

Carb Slide

Pipe Rex

Fuel Trinity 20% nitro

RADIO GEAR

Transmitter Airtronics M8

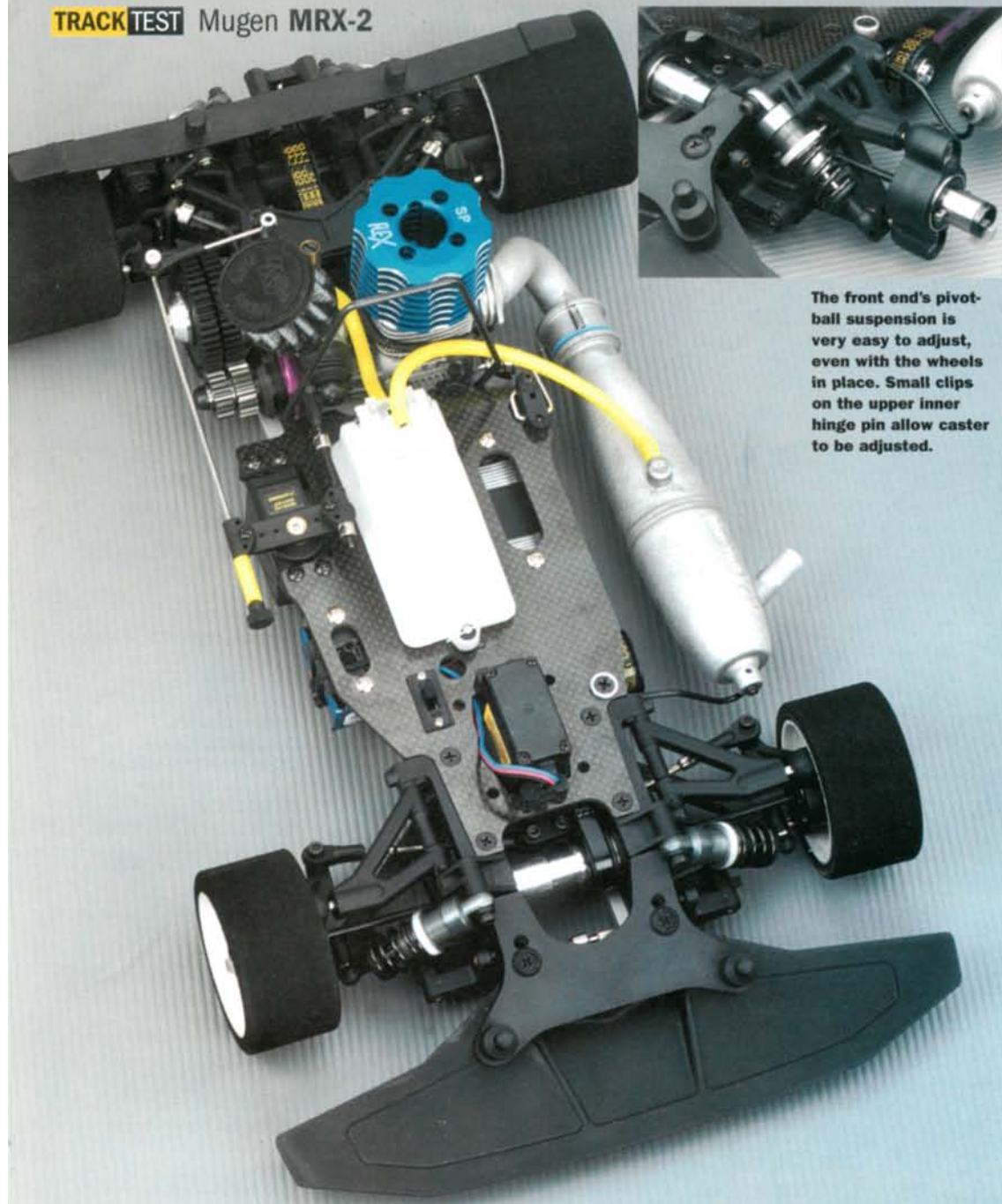
Servos Airtronics 94358Z (2)

LIKES

- Adjustable centrifugal 2-speed transmission.
- Quick-change wheels.
- Highly adjustable suspension.
- Centax clutch.

DISLIKES

- Although competitively priced, the Mugen is expensive compared with other RC vehicles.
- Hubs accept only Mugen rims.



The front end's pivot-ball suspension is very easy to adjust, even with the wheels in place. Small clips on the upper inner hinge pin allow caster to be adjusted.

building & setup tips

Step 13. When assembling the 2-speed transmission, put a drop of highly visible paint on the top of the screws that hold everything together. This will make them easy to identify from the outside of the tranny.

Steps 16 and 17. Before installing the rear suspension arms, find the ball stud for the swaybar and install it.

Step 23. To reduce vibration, mount the receiver using O-rings between it and the plate.

Step 32. The shocks come with the seals already installed. Take the time to inspect the seals and make sure the retaining clips are properly installed.

Whenever you assemble a nitro-powered car, put thread-locking compound on all the metal fasteners. The last thing you want is a screw falling out during a race.

YOU'LL NEED

■ 2-channel radio ■ 2 high-torque high-speed servos ■ Receiver pack ■ Engine ■ Header and pipe ■ Fuel ■ Fuel bottle ■ Glow starter ■ Body ■ Polycarbonate-compatible paint ■ Thread-locking compound ■ Starter box

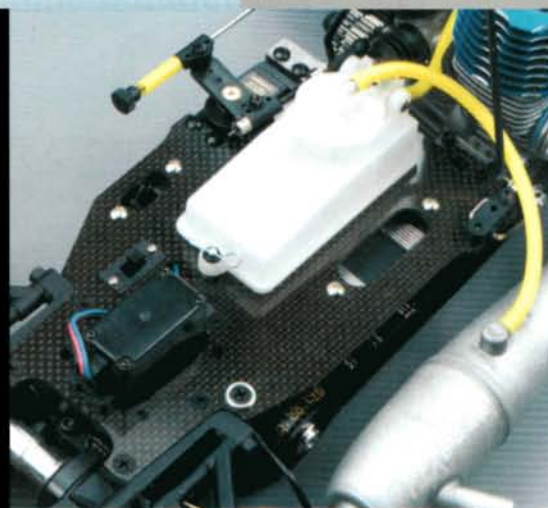
FACTORY OPTIONS

■ Clutch-spring adjustment tool—part no. B0514 ■ Aluminum radio-plate mount—H0166 ■ Aluminum brake bracket brace—H0167



Left: the big-block 21 gets this car moving in a hurry, and the 2-speed tranny gets it moving even faster. The Centax clutch may be adjusted from the outside; there is no need to remove the clutch bell or the engine.

Right: this is the car's command center. All the electronics are mounted on this carbon-fiber upper plate. The fuel tank can be quickly removed by just pulling two clips. The long side belt has an adjustable tensioner to prevent it from skipping.



KIT FEATURES

• **Chassis.** The MRX-2's platform is a 5mm-thick aluminum plate with countersunk holes and a matte finish. All of the edges have been chamfered to keep your fingers safe from sharp edges. The chassis has three huge openings: one under the front drive pulley, one under the fuel tank and one under the rear drive pulley. These reduce the chassis' weight and prevent debris from getting trapped under the drive pulleys. A large thick bumper protects the chassis' front.

The chassis' large upper graphite plate runs from the engine to the front-suspension bulkheads. The radio gear and fuel tank are mounted on this plate and are installed in the car as one unit.

• **Suspension.** The MRX-2 uses double-wishbone suspension on all four corners. At the chassis, the front suspension arms pivot on hinge pins that are held in place with small setscrews. The steering knuckles turn on large pivot balls that are screwed into the suspension arms. These pivot balls allow you to easily adjust camber and overall front-end width. Small shims clipped onto the inner hinge pin allow you to change the caster setting position by moving the upper arm. Front-suspension up- and down-travel may be precisely adjusted by turning the setscrews. The front end uses a ball-and-cup-type swaybar whose tension can be changed by rotating the ball and cup equally clockwise or counterclockwise. For example, if the flats on the bars are parallel with the ground, the swaybar will be soft; if they are rotated 90 degrees, the swaybar will be stiff.

The rear suspension arms' inner pivot is also a hinge-pin design. The lower hinge pin is captured at both ends, and the outer hub uses pivot balls on the bottom and an adjustable tie rod at the top. Rear camber is adjusted by altering the length of the upper tie rod, and rear toe can be adjusted by threading the rear pivot balls farther into or out of the arms; the car's width can also be adjusted in this way. The massive rear swaybar is adjusted by moving the connecting rod inward or outward on the arm. Two mounting positions are molded into the arms for the swaybar.

Mugen has helped you with the shock building by installing the seals in the threaded shock bodies. A volume-compensating bladder is installed under the cap to reduce the amount of air in the shocks, which are filled with 600WT Mugen silicone shock oil.

• **Drive train.** The MRX-2 includes a fully adjustable Centax clutch, which is dialed in by altering the clutch shoes' spring tension—with the engine still in the car. The clutch-type 2-speed transmission is also fully adjustable and uses large shoes to engage second gear.

The car is slowed with a steel disc brake that features two steel discs with a metal, spiral-cut disc sandwiched between them to keep the rotors cool under braking.

Three reinforced belts (short front, long middle, short rear) transfer the power to the one-way-

equipped front axles and solid (no differential) rear end. The center belt has an adjustable belt tensioner, and dogbones drive the hubs. Each hub also features quick-release tangs for faster tire changes.

• **Body, wheels and tires.** The kit includes a sleek Mugen Lola body that keeps the car well planted. I painted mine with Parma* Faskolor paints and my trusty airbrush. The tires had been trued and mounted on white, 6-spoke nylon rims. (Only rims designed for Mugen axles will fit this car.)

• **Engine accessories.** The fuel tank is mounted on the upper deck slightly off the car's centerline. Two carriage pins hold the tank in place, and this makes for easy removal. A tapered bottom and special ribbing inside the tank keep the fuel at the pick-up where it belongs. A filter is built into the tank, so there's no need for an in-line fuel filter.

PERFORMANCE

On-road 1/8-scale cars such as the MRX-2 routinely top 60mph and accelerate to that speed in about 3 seconds; that kind of performance is usually reserved for \$50,000 full-scale supercars, so I don't think I have to tell you how psyched I was to experience it myself—if only in RC. Because the parking lot on which I chose to sort out the car was a little dusty, traction was poor. The MRX-2 still had impressive acceleration on the unprepared surface, but at slower speeds, it seemed to push in the turns. When up to speed, the body did a good job of pushing the car to the ground. The next stop for the MRX-2 was the track. I drove it at about 1/2 throttle for the first few laps to get used to the track layout, then I pulled onto the straightaway and mashed the throttle. The car came to life and booted down the straightaway. Before I could blink, I was hitting the brakes and slowing down for the first turn. The brakes felt very smooth and proved capable of fine control as well as wheel-locking stops. Infield handling was equally impressive, as the car turned in hard and stayed flat during turns. The MRX-2 looks very intimidating but is easy to drive. If you are new to 1/8-scale racing, run your car with a slightly rich carb setting to slow it down. But at any speed, you'll notice that you'll burn through tires in a hurry when running an 1/8-scale on-road car. Racers expect this, but if you're lucky enough to be considering one of these cars for play, get ready to use up a set of tires for each afternoon of fun. Unfortunately, you can only use rims designed to fit the MRX-2, so stock up.

FINAL THOUGHTS

The Mugen MRX-2 is an impressive piece of racing hardware. If you want an RC car that is fast and capable of winning races, check out the MRX-2. After all, it won the 1999/2000 On-Road World Championship. Even if you don't have the green to buy one, find out where the MRX-2 is racing and at least check it out.

**Addresses are listed alphabetically in "Featured Manufacturers" on page 200. ■*

Rex PRS217 engine, header and pipe

To run a car of this caliber, you need an engine with gobs of power. I use a Rex* PRS217 7-port powerplant. You know a manufacturer means business when it prints "Speed" on the box! This engine has a claimed output of 2.33hp and an rpm range of 3,000 to 32,500. It features a 3-needle carburetor with a large (9mm) opening. A Rex tuned header and pipe help the engine sing a sweet tune as it takes the Mugen around the track. Instead of the usual rubber-pipe coupling, three small but strong springs hold the header and pipe together. A rubber coupling always seems to come off at the wrong time.

Airtronics M8 radio

I control the MRX-2 with an Airtronics* M8 radio. The Mugen has lots of adjustments to make it better on the track, and this radio offers lots of ways to make it even better. Its easy-to-use and read display makes it easy to adjust during a race.

Airtronics 94358Z steering servo

This high-torque aluminum-gear servo is the latest from Airtronics, which claims 200 oz.-in. of torque and a transit speed of 0.10 second. When you are driving a car that can reach speeds of more than 65mph, you need to be in full control. This servo is definitely the one for this job.

Airtronics 94737 throttle/brake servo

The 94737 Contest ball-bearing servo has a claimed output of 57 oz.-in. of torque and a transit speed of 0.15 second.

Mugen Lola VDS body

This traditionally styled body provides plenty of downforce to plant the MRX-2.

Mugen receiver battery

This small 900mAh battery supplies enough power for the two monster servos; 900mAh will keep you running for a long time.

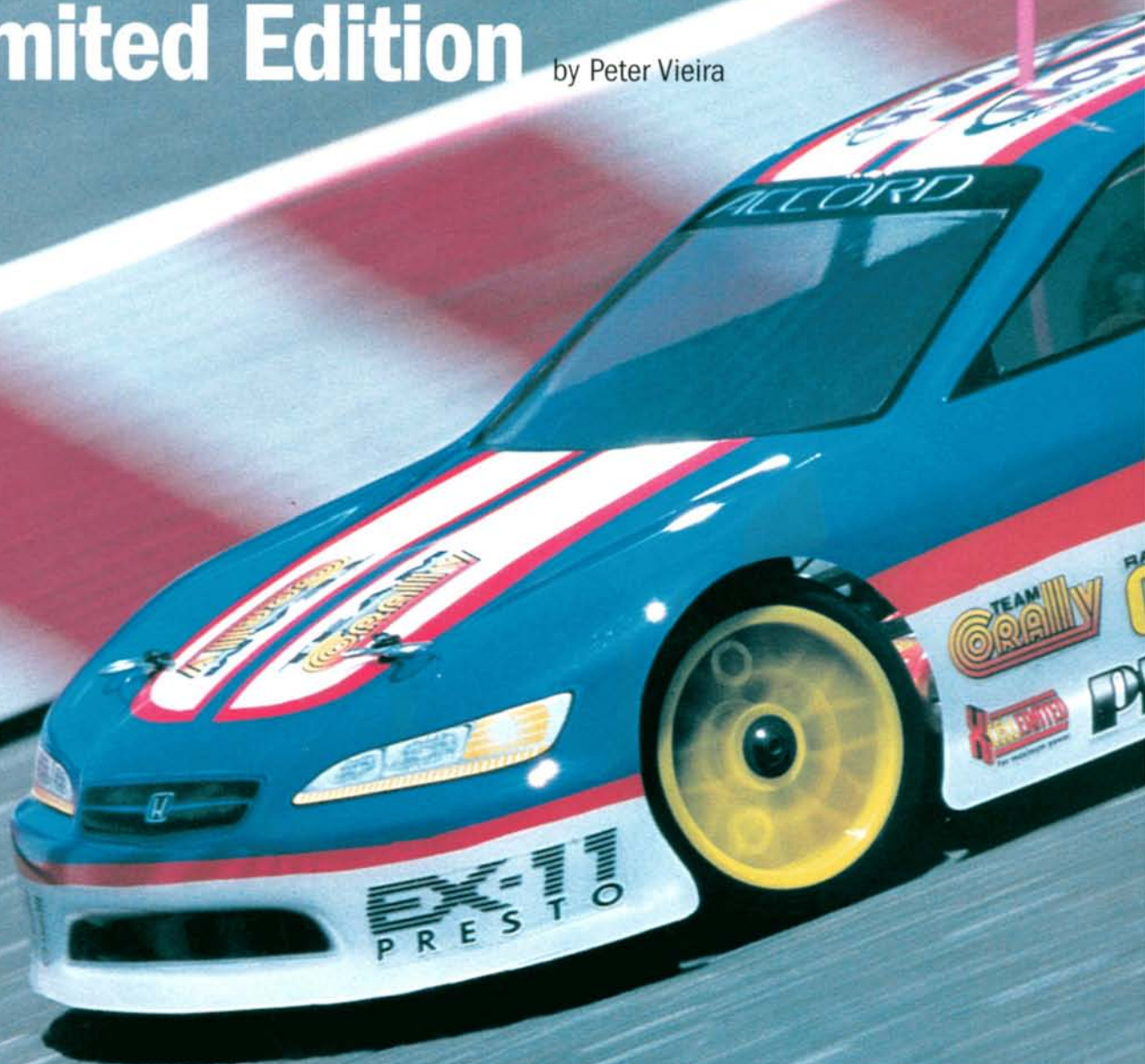
Trinity Monster Horsepower fuel

Trinity* fuel is available with 16, 20, 25, 30 and 35 percent nitro. Trinity tells you exactly what's in its fuel, listing the percentage of nitromethane, methanol and castor. If you're like me, you want to know what's going into your expensive racing engine. I use 20 percent nitro for my car.

**TRACK
TEST**
1/10-SCALE ELECTRIC

Corally C4 Andy Griffiths Limited Edition

by Peter Vieira



PHOTOS BY WALTER SIDAS



The Eurochamps' top tourer takes on the U.S.

Corally[®] is best known in the U.S. for its world-class $\frac{1}{12}$ -scale cars, but the Netherlands-based company became buzz-worthy in touring car circles with the 1999 release of the C4 Touring, its first 4WD sedan. The car was an interesting mix of convention (dual-belt drive train), innovation (externally adjustable shocks) and creative parts spec (its suspension came from the Serpent Impulse), and it was a competitive threat on the racetrack. The C4 was most widely campaigned in Europe, where it won the European Touring Car Championships under the control of Andy Griffiths. That brings us to his signature-edition C4, which revamps the chassis configuration while keeping the best features of the original.

DATA CENTER

VEHICLE TYPE electric 4WD competition touring car

BEST BUYER Experienced touring car enthusiast/racer

KIT RATINGS (poor, satisfactory, very good, excellent)

Instructions Satisfactory

Parts fit/finish Very good

Durability Very good

Overall performance Very good

SPECIFICATIONS

SCALE $\frac{1}{10}$

STREET PRICE \$329.95

DIMENSIONS

Wheelbase 9.8 in. (249mm)

Width (F/R) 7.32/7.38 in. (186/188mm)

WEIGHT

Total, as tested 52.48 oz. (1,488g)

CHASSIS

Type Double deck

Material Graphite plate

DRIVE TRAIN

Type Dual belt

Primary Pinion/spur

Drive axles Ball-and-socket-type universal

Differentials Ball

Bearing type Shielded ball bearings

SUSPENSION

Type Upper and lower A-arm

Damping Oil-filled, coil-over shocks with externally adjustable damping

WHEELS

Type 16-spoke, one-piece plastic

Dimensions 2x1 in. (50.8x25.4mm)

TIRES

Type M1 ISTC Spec

ELECTRONICS (not included)

Transmitter KO Propo EX-11 Presto

Receiver KR297-FZ

Battery Corally matched Sanyo 2400

Motor Corally Competition Touring 11x3

Speed control Novak Cyclone TC

Servo Hitec HS-925MG

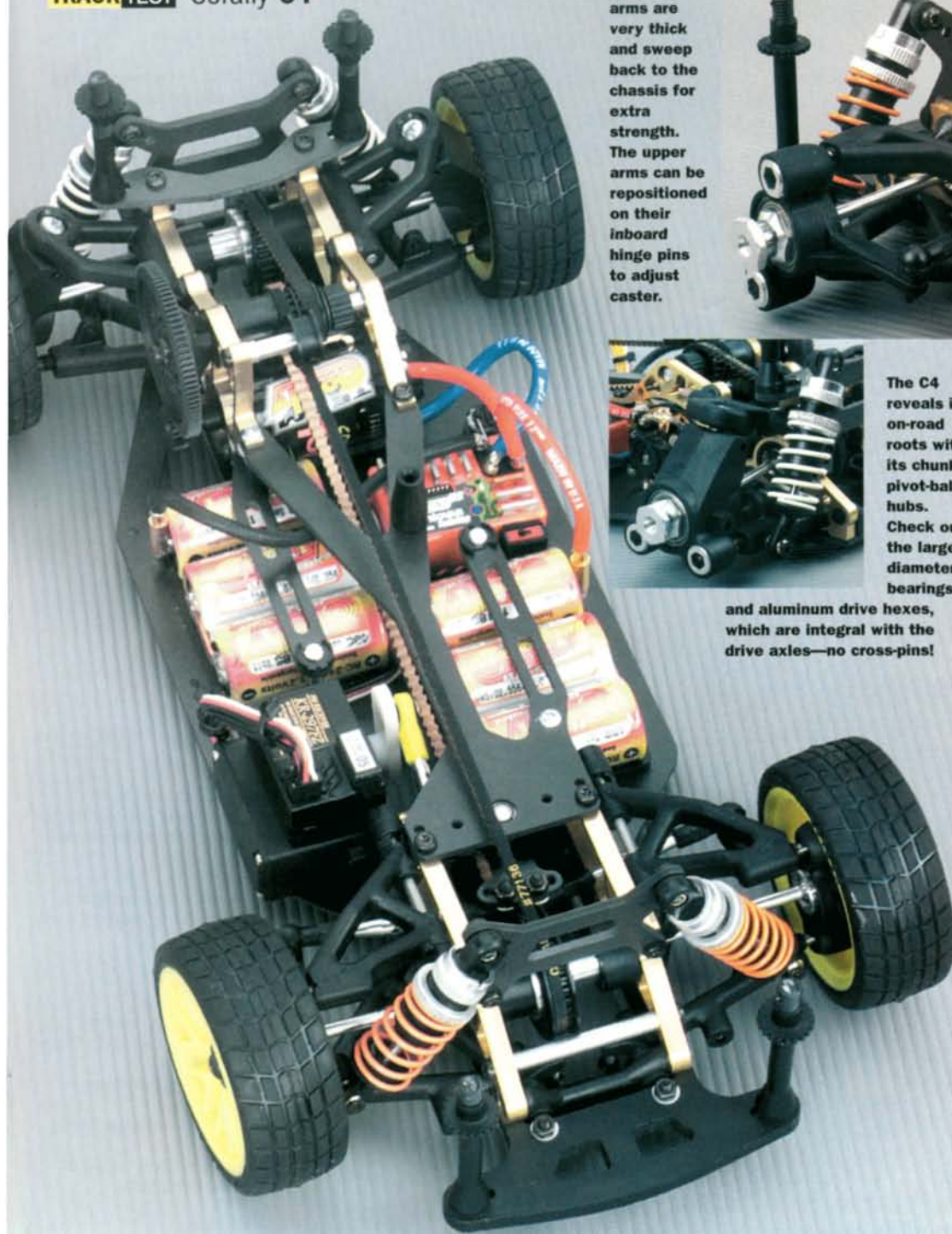
LIKES

- Excellent chassis balance.
- Highly adjustable and precise suspension.
- Caster, belt tension and diff settings can be adjusted quickly and easily.

DISLIKES

- Little adjusting clearance for turnbuckles.
- Factory assembly must be undone to complete the kit.
- Finicky to build and work on.

TRACKTEST Corally C4



The front arms are very thick and sweep back to the chassis for extra strength. The upper arms can be repositioned on their inboard hinge pins to adjust caster.



The C4 reveals its on-road roots with its chunky pivot-ball hubs. Check out the large-diameter bearings

and aluminum drive hexes, which are integral with the drive axles—no cross-pins!

building & setup tips

The C4 AGLE's parts are top quality, and the chassis layout is relatively simple, as belt-drive tourers go. But Corally's factory assembly (which must be undone to complete the kit) and unemphatic, text-light instructions make it easy to goof up seemingly simple steps. I had to redo a few steps more than once when I let my focus slip; here's what to watch out for:

Drive-axle assembly. The front and rear dogbones are of different lengths, and the front and rear hex ends are also two different lengths. I noticed the dogbones but not the hex ends. Just look closely at the drawing, it tells the story.

Front arm assembly. The mounting blocks for the front arms hold the hinge pins offset from the center of the blocks. The rear block should be installed offset "up," and the front should be offset "down."

Bellicrank assembly. Carefully measure the turnbuckle links. For zero toe-in with the suggested ball-end positions, assemble the linkages so each is exactly 63.5mm end to end (not center to center). The turnbuckles are very difficult to adjust once installed because there is no room to swing an Allen key.

Dogbone insertion. The plastic pads that slip over the dogbones' crosspins will loosen up after the first run, and they'll easily fall off when you remove the axles from the outdrives. First tip: don't lose the pads! Second tip: a bit of grease will stick the pads to the axles and make it easier to reinstall the axles in the outdrives.

Battery assembly. The jumper wire for the saddle pack must be precisely sized, as a bulging wire will rub the front belt, and a wire that's too tight may pop a solder joint in a crash. I found a 60mm jumper best; fine-tune the slack in the wire by adjusting its position on the cells.

Thread-lock application. Put a drop of medium-strength thread-lock ("Blue," if you use genuine Loctite) on all the screws that thread into the aluminum bulkheads and into the aluminum posts for the battery straps.

YOU'LL NEED ■ Transmitter and receiver ■ 6-cell saddle-pack ■ Electronic speed control ■ 190mm body ■ Steering servo ■ Tire glue

	ASSOCIATED TC3	YOKOMO YR4M2 USA	HPI RS4 PRO 2	CORALLY C4 ANDY GRIFFITHS
Wheelbase	10.18 in. (259mm)	9.94 in. (252mm)	9.88 in. (251mm)	9.8 in. (249mm)
Width	7.5 in. (190mm)	7.19 in. (183mm)	7.2/7.4 in. (183/188mm)	7.32/7.38 in. (186/188mm)
Diff type	Ball	Ball	Ball	Ball
Chassis	Composite	Graphite	Graphite	Graphite
List price	\$369	\$380	\$399	NA
Available at	\$225	\$229	\$219	\$329
Reviewed in	2/00	11/98	5/99	8/99

Partial list only; product category is too large to list all competitive vehicles. Prices vary with location.

KIT FEATURES

• **Chassis.** Like so many other pro-level electric touring cars, the C4 Andy Griffiths Limited Edition (C4 AGLE, for short) features a double-deck graphite chassis. For the newest C4, the upper deck is a "slim" version that allows a bit more torsional flex. Unlike most other comparable cars, the C4 AGLE uses machined-aluminum bulkheads to join the chassis plates. The gold-anodized bulkheads are heavily relieved and have a nearly skeletal appearance, but they're very rigid, thanks to the thickness of the billet out of which they are carved. The rear bulkheads are machined to provide 3 degrees of anti-squat, a new feature for the Andy Griffiths version of the C4.

The chassis is slotted to accept 6 cells in a unique three forward/three aft configuration, and Corally's well-proven molded battery cradles eliminate the need to file battery slots. Torx screws are used on the C4 AGLE (and other Corally cars), but there's no need to hit the hardware store before tearing into the kit; the required Torx driver with star-shaped tip is included. You'll be reaching for it often, since the

chassis and bulkheads are factory assembled and have to be disassembled for the kit to be completed.

• **Drive train.** The C4 AGLE's long-front-belt/short-rear-belt/high-layshaft setup is standard touring car stuff, but Corally adds some unique details. A one-way bearing equips the front diff's layshaft pulley, and adjustable one-way action is provided by means of a threaded friction collar that can be backed off for free spinning action or tightened fully for full-time 4WD. In-between settings are also possible, but because the system does not use any type of padded slipper mechanism (like similar but more complex designs from Schumacher and HPI), settings between "off" and full lock do not feel very smooth as judged by bench testing; the track may tell another story.

Ball differentials are standard equipment, of course. The front and rear units are identical and very light, thanks to their aluminum outdrives. The polished diff rings are cushioned by O-rings pressed into the outdrives, and this results in exceptionally smooth diff action. Best of all, the diffs are externally

adjustable without disassembly: by slipping an Allen key through one of the outdrives, you engage the diff screw, and the diff is easily tightened or loosened by turning the opposite wheel. Also convenient are the C4 AGLE's easy-to-adjust front and rear belt tensioners. The simple pulleys aren't clever, but they are much easier to adjust than eccentric diff mounts or moveable layshafts.

Brightly polished aluminum universal axles link the diffs to the drive hubs, and dogbone ends use small plastic pads to protect the crosspins from wearing the aluminum diff outdrives. The universal mechanism is unabashedly patterned after MIP's widely acclaimed CVD design, but the drive side of the axle is unique among touring cars. Instead of the usual threaded stub axle and crosspin with plastic drive hex, the Corally design extends the "bell" of the universal into a cylinder that passes through large-diameter bearings in the molded hubs. The points of the integral drive hex prevent the axle from

KO Propo EX-11 Presto transmitter and KR-297FZ receiver

The Presto is one step down from KO's* top-of-the-line Mars system, but with features such as ABS, exponential, programmable electronic trims and the usual endpoint and dual-rate settings, the Presto has more than enough adjustments for any racer. It's also FM (naturally), and the included micro receiver is very reliable.

Corally Competition Touring 11x3 motor

Corally supplied a hand-wound bombshell to accompany the C4 AGLE. The motor features Corally's Dynamic Flow can design with standup brushes, and it horks.

Corally MAXcellerated 2400mAh battery

With all the hoopla over Panasonic's nickel-metal 3000mAh cells, Sanyo's 2400mAh Ni-Cds kind of slipped in under the radar. Ni-Cd punch is tough to beat, and with an extra 400mAh of capacity, run time isn't a problem. I also used Corally's no-loss battery plugs.

Hitec 925MG steering servo

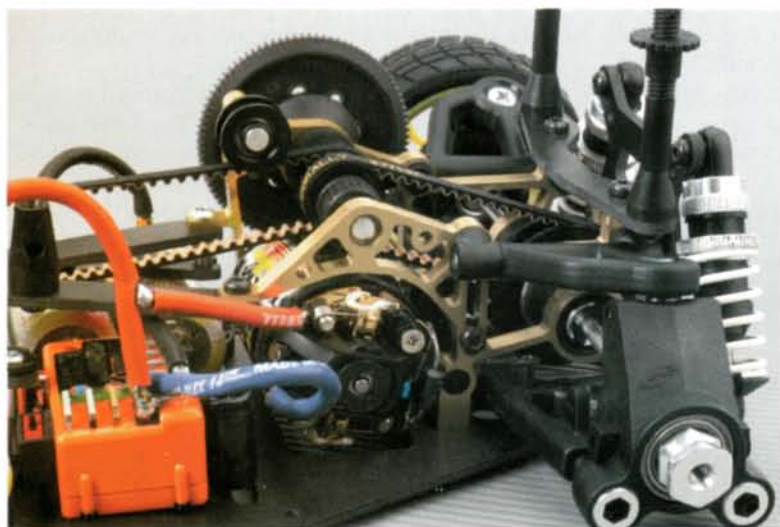
This Hitec metal-gear servo has been swapped into and out of more vehicles than I can count, from 1/8-scale buggies to monster trucks to touring cars like the C4. The 925MG is fast, strong and probably overkill for an electric touring car, but better too much servo than too little.

Novak Cyclone TC speed control

The "touring car" version of the Cyclone is a natural here. Of course, you get the Cyclone's usual features (full programmability via PC or Pit Wizard, small size, excellent efficiency, etc.), but the sedan-specific profiles are what set the TC apart. In addition to "high traction" and "touring stock" profiles, Novak includes "World Cup" settings taken directly from David Spashett's IFMAR Worlds-winning Street Weapon.

Protoform Accord sedan body

As always, Protoform* pulls a good-looking body and includes all the details and logo decals you need along with a wing and hardware. But to save time, I used Protoform's injection-molded wings instead of the included Lexan piece. No cutting, no painting; that's my kind of wing.



The skeletal side plates are works of art. Look closely, and you'll see the captured diff outdrives that help to prevent track grit from entering through the dogbone slots; notice, too, the arm mounts that press into the bulkheads to deliver 3 degrees of anti-squat.

SETUP

I built my C4 AGLE with Andy Griffiths' Eurochamps setup, which Corally includes with the kit along with the required springs. Andy's tire choices are listed below, but I used the kit tires for my tests. I also used Team Losi* Certified oil in the shocks instead of kit oil.

	FRONT	REAR
Tires	Ride GS	Ride GS
Camber	1.5°	1.5°
Caster/anti-squat	13°	3°
Width	187mm	187mm
Ride height	6mm	6.5mm
Shock oil	40WT	40WT
Springs	Orange	White
Pistons	4-hole	4-hole
Diff setting	Medium tight	Medium tight
One-way pulley	Locked	
Motor	Corally 11x3, 5° timing	
Gear ratio	90/24	
Body	Protoform Alfa 156	

TRACKTEST Corally C4

passing straight through the hub, while a wire circlip prevents the setup from being pulled out of the hub. The wheel is secured by a button-head screw and loaded by a Belleville washer to prevent it from loosening, and it looks great.



The axles use MIP CVD-style internals with aluminum dogbones and axle tubes. The load-bearing drive parts are steel.

- **Suspension and steering.** Corally's relationship with Serpent is well exploited here, as the C4 AGLE wears the same pivot-ball suspension parts as the Serpent Impulse—*Radio Control Car Action's* "2000 Car of the Year." The on-road-inspired suspension employs large, sweptback upper and lower wishbones with precisely machined pivots and padded retainers. Camber links are nonexistent; all adjustments are made by threading pivot balls into or out of the suspension arms. Caster is adjusted via snap-on clips that position the upper arms forward or back on their hinge pins, and rear toe is easily dialed in via the dual pivot balls in each rear arm.

Plastic, threaded-body shocks provide the damping and use knurled aluminum spring collars for quick preload adjustments. The shock pistons are adjustable, thanks to a Schumacher Vari-shock-style two-piece design, but Corally cleverly does away with the need to disassemble the shocks (as required by the Schumacher setup) without resorting to a complex double-shock shaft like the old Kyosho Platinum shock's or the modern Progressive adjustable shock's. Corally's design uses a splined piston that engages a molded "key" in the bottom of each shock. By pulling the shock shafts to full extension and turning the lower shock eyelet, you may select one of four piston settings.

The C4 AGLE's steering system is pure simplicity. A single, bearing-supported graphite bellcrank swings the steering hubs and is joined to the hubs and steering servo by aluminum turnbuckles. The bellcrank does not incorporate a servo-saver, so the builder is left to choose an appropriate servo-mounted unit. The turnbuckles use holes instead of flats for adjustment via a thin Allen key and have a candle-pin shape for strength.

- **Body, wheels and tires.** Not surprisingly, the C4 AGLE does not include a body, but wheels and tires are part of the package. The neon-yellow hoops have a 16-spoke "mesh" pattern, and the tires have a bit of a history. Although the non-belted, treaded tires seem a bit pedestrian, particularly with their open-cell foam inserts, their sidewalls tell a story. The codes "M1" and "ISTC" identify these treads as the legal spec tires from the 1998 IFMAR on-road Worlds exhibition touring car event. Does that make these great tires? In a word, no, but they are kind of cool to have.

PERFORMANCE

I tested the C4 AGLE on a parking-lot track that had a few frost ripples but was otherwise smooth and had a year-old paving job with decent grip for an unprepared surface.

Like most tracks that use sections of board as lane barriers, my test track had lots of hairpin switchback turns that unwound into a long back straight and a single monster sweeper that fed the cars back into the twisty infield. Any touring car with modified power gets a workout on this type of track because hard acceleration is required to shoot the car out of each corner, and stiff braking is needed to set up for each turn.

After dialing in the preload adjusters to tweak the chassis for equal left- and right-turn traction and locking out the front one-way pulley, I made a few practice passes around the track then leaned on the throttle to see how hard I could push. The Andy Griffiths' setup is a little soft, and the car drifted slightly through turns but didn't hook when braking or push when powering out of turns. A little finesse was required when getting back on the gas, as the C4 widened its line if I nailed the throttle before it hooked up, but its handling was very predictable.

After swapping packs and letting the motor cool, I went back out for more laps with the front one-way activated. In general, I prefer full-time 4WD, as I find it much more forgiving; one-way setups are usually too loose for me. I wasn't surprised when the C4 also got squirrely with the active one-way, but I was impressed by the adjustable system's ability to tone down the one-way action and tighten up the car's handling.

Despite the belt's inconsistent feel when I tugged it by hand, the adjustable one-way was definitely a help on the track. After a few adjustments, I found a stiff but active one-way setting worked best for my tastes.

Durability did not appear to be a concern during my tests, which included a few lumber-busting whacks. The C4 shrugged off most hits with a few nose scuffs, but I did manage to bend a rear hinge pin when the rear wheel caught a board.

Handling was compromised by the bent pin, which caused the rear tire that was struck to toe-out, but a rolling car is always better than a broken car. On disassembly, I found the hinge pin was very soft and easy to bend back to its original straight shape. The soft pin almost certainly spared the suspension arms from breaking and allowed the C4 to keep turning laps until repairs could be made. A side note: the crash also pushed the rear bulkhead plates out of register. Although the misalignment wasn't visible, it did bind up the layshaft's one-way bearing by causing it to press against the bulkhead, and this disabled the adjustable one-way feature. The problem disappeared after I had reassembled the front end.

THE VERDICT

I don't think my testimonial can outshine the fact that the C4 was driven to a European championship win, but I can tell you that it's highly tunable and easy to drive and doesn't require the skills of a Euro champ to be driven fast.

The new battery placement appears to have improved its sure-footed feel, and the quality and fit of its parts are among the best in RC. On the downside, it's likely that the average hobby shop will not be as well stocked with parts as it is with those from the more prolific manufacturers, and the C4 is more finicky to build and tune than its competitors. But if your measure of a racecar is on the racetrack, it's hard to find fault with the Corally C4 Andy Griffiths Limited Edition.

**Addresses are listed alphabetically in "Featured Manufacturers" on page 200. ■*

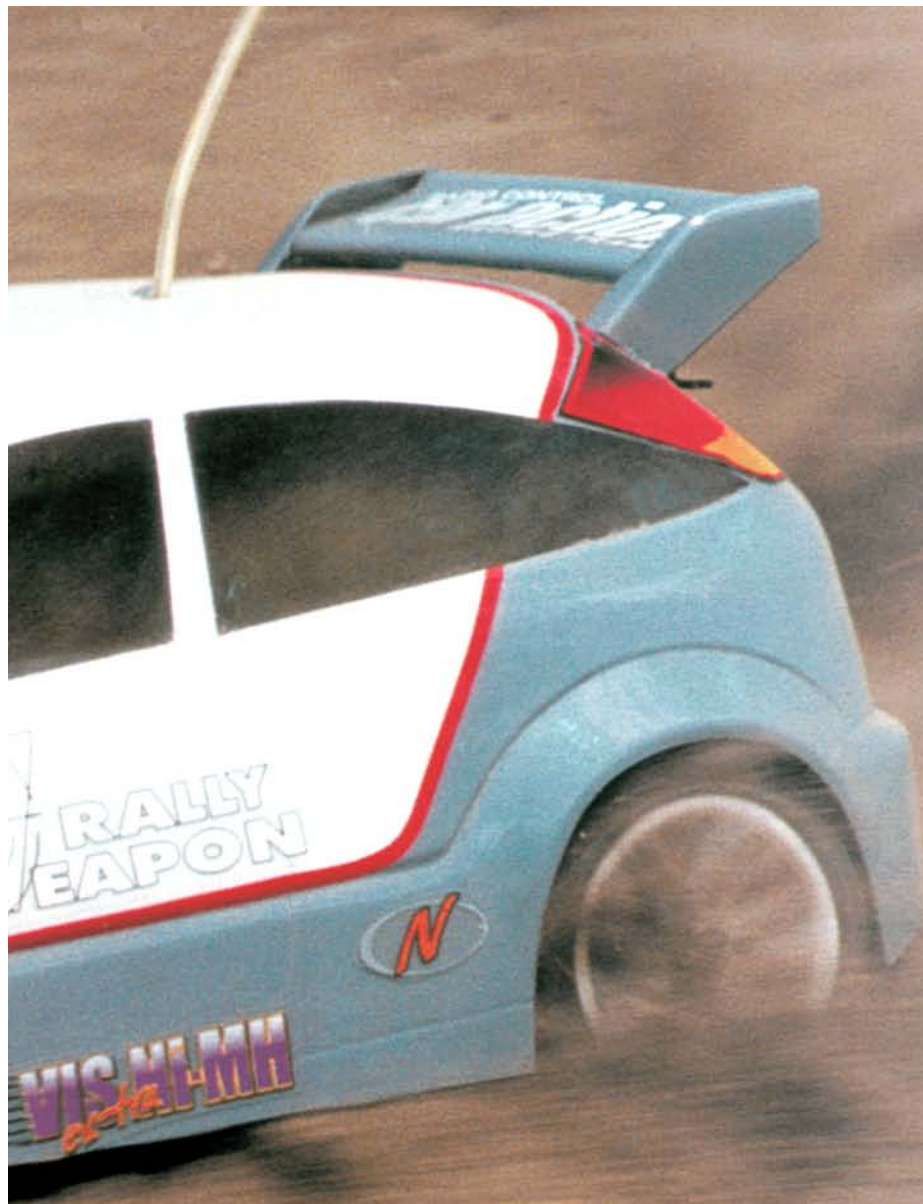
**TRACK
TEST**
1/10-SCALE ELECTRIC

Team Losi Rally Weapon

Losi's Weapon returns to
its dirt roots by Derek Buono



Since the HPI RS4 Rally was released, the converted-touring-car rally segment has grown to include vehicles from Yokomo, Schumacher and OFNA. But one very notable sedan has been absent, despite its well-known off-road roots. The sedan in question is the Team Losi* Street Weapon, which is built on the world-championship-winning technology of Losi's Double-X4 4WD buggy. With its sealed belt-drive system and off-road pedigree, a rally version of the Street Weapon seems like a no-brainer; but then we are talking about Team Losi, which made it a "brainer" and added some unique new features to "rallify" the Street Weapon. New rear hubs, shocks and tires plus some Double-X4 parts combine to form the Rally Weapon. To see what it can do, we put the new car through its paces on the dirt and the street.



PHOTOS BY WALTER SIDAS

DATA CENTER

VEHICLE TYPE 1/10-scale 4WD

electric rally car

BEST BUYERS racer looking to race both on- and off-road

KIT RATINGS (poor, satisfactory, good, very good, excellent)

Instructions Very good

Parts fit/finish Very good

Durability Very good

Overall performance Good

SPECIFICATIONS

SCALE 1/10

LIST PRICE \$259.95

DIMENSIONS

Wheelbase 10.2 in. (259mm)

Width 7.25 in. (184mm)

WEIGHT

Total, as tested 55 oz. (1,559g)

CHASSIS

Type Molded tub

Material Composite

DRIVE TRAIN

Type 3-belt

Primary Pinion/spur

Drive shafts Universal joint

Differentials Ball

Slipper Clutch None

Bearing type Teflon sealed bearings

SUSPENSION

Type Lower A-arm w/adjustable upper link

Damping (F/R) Oil-filled, coil-over

WHEELS

Type One-piece, 5-spoke

TIRES

Type Rally tread

LIKES

- Great performance.
- Scale looks.
- Extra ride height.

DISLIKES

- No bearings in the diffs.

TRACK TEST Team Losi Rally Weapon



To increase down-travel, Losi redesigned the rear hubs. The axle now sits above the arms to prevent them from binding when fully extended.



The new 0.48-inch-diameter shocks allow the Rally Weapon to tackle off-road terrain with ease, and their red-anodized finish looks great.

building & setup tips

The Rally Weapon was very easy to build, thanks to Losi's fine instructions. The kit does have a few tricky spots that newbies may find difficult, but racers shouldn't have any trouble at all.

BUILDING

Tapping the holes. Losi includes a special screw to tap all the 4-40 holes. It is highly recommended that you tap all the holes before starting assembly; Losi even recommends that you use a lubricant with the tapping screw. The extra 1/2 hour you spend here will help you avoid having future troubles.

Bellcrank installation. The kit doesn't include bearings for the steering, and there was some major bellcrank binding. If the steering isn't smooth, take out the plastic bushing and file the inner holes until it frees up. Better yet, replace the bushings with bearings.

Turnbuckle assembly. Turn to the instruction pages that cover the turnbuckle assembly, and do this job first while you have tons of energy and patience. I don't know about you, but I don't like assembling turnbuckles, so I do it first and know I'll enjoy building the rest of the car.

SETUP

Suspension. The factory setup worked well on the test track. I did feel that the car was a little soft for bumpy tracks and might be bothered by small bumps more than it should be. I replaced the stock oil with 37.5WT oil, and the stiffened suspension handled the landings off jumps better.

Ride height. Your first notion might be to set the suspension for maximum ride height, but you should really set the rear universals parallel with the ground and then adjust the front in the same way. Down-travel is just as important as up-travel, and if there isn't enough of either, the car will not handle properly.

YOU'LL NEED ■ 2-channel radio ■ ESC ■ Motor ■ Saddle-pack battery ■ Charger ■ Paint

FACTORY OPTIONS ■ Machined graphite/composite chassis—part no. A-9917 ■ Graphite/composite chassis cover set—A-9916 ■ Rear shock towers (F/R)—A-9743/A-9843 ■ Suspension arms (F/R)—A-9738/A-9838 ■ Aluminum dogbone/drive shaft w/yoke—A-9927 ■ Lightweight machined/anodized motor plate—A-9920 ■ Aluminum idler shaft w/hardware—A-9934 ■ High-performance blue rear drive belts (336/196mm)—A-3204/A3207



With the universals set level, at ride height, the Rally offers about 20mm of ground clearance.

SHARED STREET WEAPON FEATURES

The Rally Weapon shares almost every component with its cousin, the Street Weapon. Both are based on a shortened Double X-4 chassis, so the Rally Weapon is right at home in off-road conditions. The Rally has the same arms, sealed triple-belt drive train and universal drive shafts as the Street Weapon. The latest white bulkheads, cam-style motor mount and anodized-aluminum shocks almost guarantee great performance. In rally mode, the Weapon chassis has extra suspension travel, taller ride height and rally-specific tires, wheels and body. With these minor changes, Losi converted its more than capable street machine into a capable multi-terrain vehicle.

KIT FEATURES

• **Chassis.** The chassis is the same design as is used on all of the current Losi 4WD vehicles. Molded from Losi's Stiffezell composite, the chassis is very rigid. It is much like the original Double X-4 chassis but without battery slots. The chassis' tub design provides extra rigidity and protection from dirt.

• **Suspension and steering.** The A-arms are identical to the Street Weapon's, with lower arms and adjustable upper link. The rear hubs' redesigned rear-pin placement allows the Rally to have an increase in down-travel without binding the drive shafts. The new hubs' five camber-link positions also provide additional tuning choices. The steering is the bellcrank design used on most Losi vehicles.

The shocks' deep red-anodized finish is the first thing you notice, but there's more to the new dampers than a color change. The Rally uses four 0.48-inch shocks with 1.4-inch rally springs (3 rate). These shocks give the Rally's suspension an ample 22.2mm of ground clearance and 20mm of

travel. Size and color notwithstanding, the shocks are identical to those on Losi's other vehicles and feature cartridge seals with a bottom-filled design.

• **Driveline.** The centrally mounted motor offers equal front/rear weight distribution. A triple belt transfers power to the front and rear ball differentials. The kit includes a full set of ball bearings. Bearings were not included in the differentials. The one-way clicker allows the front wheels to free-wheel when not under acceleration. Depending on track conditions, loosen the nut for full freewheeling, or keep it locked for full-time 4WD. The motor is mounted on a cam that allows it to slide in and out and also makes gear-mesh adjustment easy.

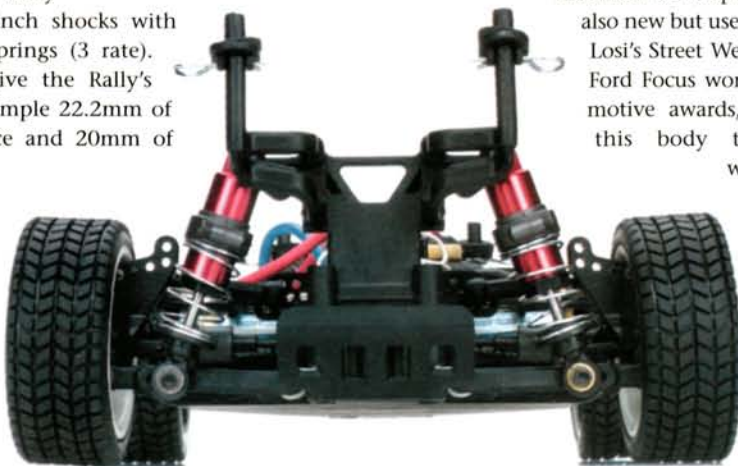


Rally of the Giants

So Cal Raceway in Huntington, CA, recently held a rally race studded with big-name drivers such as all-stars Barry Baker, Tony Phalen, Thad Garner and Robert Ito. The major manufacturers strutting their rally cars were well represented. HPI, Losi, Associated and Yokomo all tore up the slightly tame track and gave spectators a treat as these full-body 4WD buggies swapped stickers and turned quick laps. With super 4WD performance, the support of the major manufacturers and scale looks, the rally class may soon come to a track near you. If your local track doesn't yet have this class, don't be afraid to ask; it takes only a few to start a trend.

• **Wheels, tires and body.** For the Rally Weapon, Losi designed a new block-tread tire that is molded in a firm compound and looks very street-like for an off-road tire (but I'll reserve judgment until I see how it hooks up). The tires include foam inserts and are mounted on 5-spoke rims that are also new but use the same offset as Losi's Street Weapon wheels. The Ford Focus won numerous automotive awards, and Losi chose this body to be included with every Rally Weapon. The three-door ZX3 is molded with great detail and includes a decal sheet to add to the realism.

Continued on page 194



Check out the new rally tires; they were specially designed for the Rally Weapon. They had surprisingly good traction both on- and off-road.

Street to Rally Weapon

Want to convert your Street Weapon so it will be able to handle rougher terrain? With a few parts and a spare hour or two, you can shift your street machine into rally mode. Here's what you need:

Lowered rear hubs—part no. A-9804.

0.48-inch shock set w/springs—A-5104.

Rally tread tires w/foam inserts—A-7720.

Ford Focus body w/wing.

Trinity Speed Gem Onyx

I chose the 14-double for extra punch and run time. The Trinity* Speed Gem's price versus performance value is great. With the included capacitors, bearings and adjustable timing, the Onyx was a perfect match for on- and off-road driving.

Team Trinity VIS extra 3000 NiMH cells

With a slightly less voltage, but higher overall capacity, the 3000 cells are quickly becoming the top choice. I enjoyed the extra run time while putting the Rally Weapon through its paces. If you run modified, these are the cells you need.



Novak Dually ESC

The Novak* Dually is a great ESC for racers who are looking to race both stock and modified but who don't have the cash for two ESCs. I used the stock motor profile for maximum punch.



Futaba 3PJS

The Futaba* 3PJS has more features and functions than I know what to do with, including ABS, expo, a third channel, and all the endpoints and sub-trims you need to set up any car.

Futaba S9302

There is just no substitute for a high-quality servo in the steering department. The 9302 provides the necessary torque to keep the wheels pointed in the right direction, and it has the quickness to match.



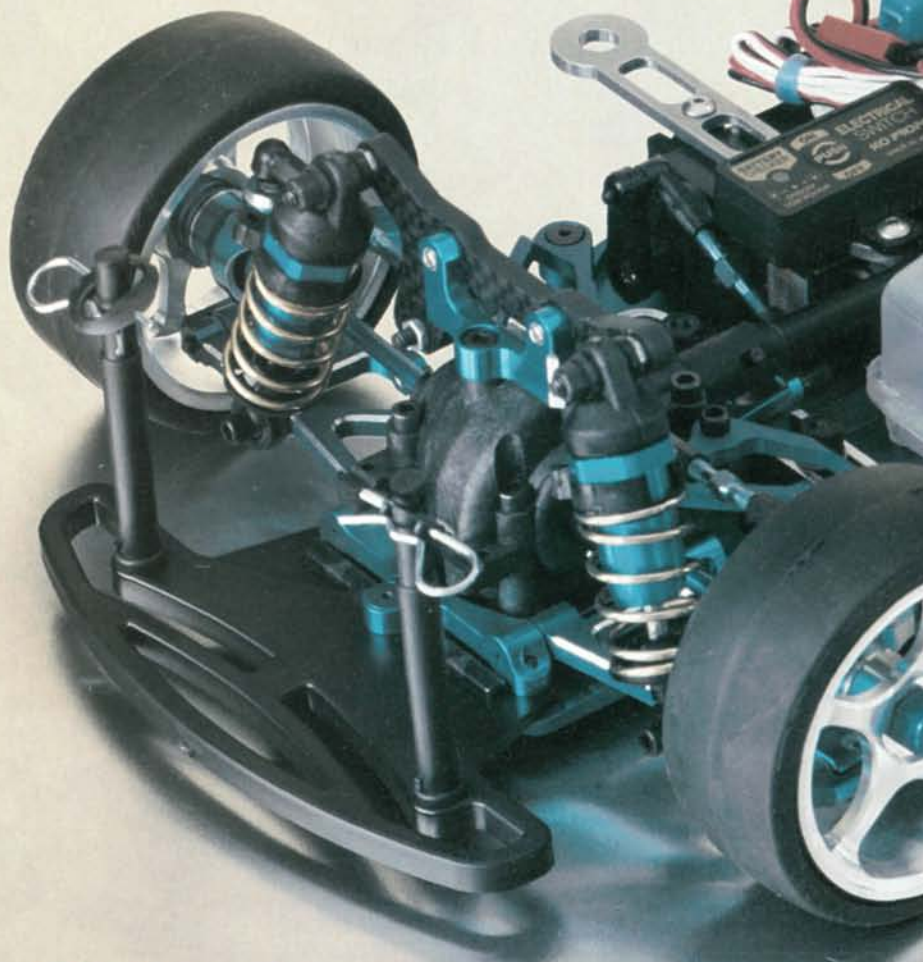
Left: I chose Protoform's new Chrysler 300M shell. Mike Ogle of Team Associated laid down the trick paint. ■ Below: the heart and soul of the Trinity conversion is the thick aluminum chassis. The holes are all countersunk, and the engine-mount slots allow easy gear-mesh tuning and ratio choices. The 58-tooth spur is the perfect size; anything larger would protrude below the chassis.



PROJECT NITRO TC3

by Derek Buono

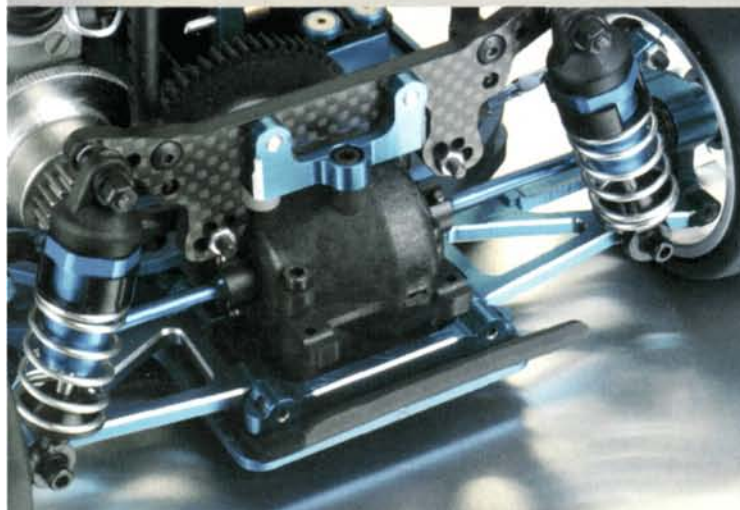
Associated's
tourer gets the
Trinity treatment



Left: you'll need an Associated flywheel-and-clutch assembly to complete the conversion. The 21-tooth clutch bell offers decent short-track top speed. The GPM spur-gear mount holds the 58-tooth spur gear firmly in place. There was little space next to the clutch bell and the rear transmission brace, so I had to be very careful when shimming the clutch bell. ■ Right: looking just as blue as the front are the rear suspension mounts. GPM offers a few choices in toe-in and anti-squat. I used the 2-degree toe-in blocks with 3 degrees of anti-squat. Both front and rear shock towers offered the same camber-rod locations as are found on the stock towers. ■ Far right: Trinity's front and rear transmission braces are machined from one piece of aluminum, and they fit the conversion's spacers perfectly. The GPM steering rack replaces the stock unit, and the stock servo-saver spring protects the steering servo from abuse.



The Associated TC3 has dominated the touring-car scene since its release, and loyalists have waited patiently—with much anticipation—for Associated to release a nitro touring car. Trinity* has decided to shorten the wait by offering a nitro conversion kit for the TC3. I built one up myself (and added a bunch of hop-up parts along the way) to create my own Nitro TC3 dream machine. Does Associated's electric cut it as a piston-powered racer?



REQUIRED PARTS

TRINITY

- TC3 gas conversion—part no. RC7000.
- Servo mounts—TK3025.

TEAM ASSOCIATED

- Electric TC3—3030.
- Plastic antenna mount—7528.
- RC10GT fuel tank—7720.
- RC10GT throttle and brake linkage—7560.
- Flywheel, non-pull—7612.
- Clutch shoes—7601.
- Clutch bell (22T)—8902.
- 58-tooth spur gear—8918.
- TC3 blue aluminum hex drives—3972.
- Blue RC10GT tuned pipe—7742.

TAMIYA

- TM-2 U-shaped exhaust manifold—41028.

GS RACING

- Blue fuel tubing—GS-2452S/T3-BL.
- Blue exhaust coupler—GS-CMS-108L.

OPTION PARTS USED FOR THIS CONVERSION

TRINITY

- TC3 corner braces (F/R)—TK5032/TK5031.
- Kinwald Pro shock bushings—TK5041.

GPM

- Graphite shock towers (F/R)—GTC3028/GTC3030.

ALUMINUM

- Spur-gear adapter—TC3015.
- Front C-shaped hub ball—TC3020.
- Knuckles (F/R)—TC3021/TC3022.
- Steering rack—TC3048.
- Front hinge-pin mount w/2° kick-up.
- Rear arm mount w/2° toe-in and 3° anti-squat.

GS RACING

- Aluminum countersunk washers—GS-W00110BL.

JT RACING

- Transponder mount—JT3936TM.

HG

- 5-spoke aluminum wheels—8400.

TEAM LOSI

- LST-S02 low-profile yellow sedan slicks—A-7702Y.
- Brake pads—A-9403.

PRO-LINE*

- 26mm Gumby wheels—2645.

BUILDING THE NITRO TC3

• **Chassis.** Machined entirely from extremely stiff billet aluminum and anodized blue, this is the heart of the conversion. Neatly machined recesses provide all the space needed for the engine, fuel tank and throttle servo, and the screw holes are all countersunk. The chassis also acts as an effective heat sink to dissipate engine heat.

The conversion kit retains the 190mm track of the electric TC3—10mm less than the current standard of 200mm for nitro touring cars. This could be a bonus because you'll be able to use the body from the electric car without having to drill new holes and then really surprise your friends with a little nitro power!

I replaced the stock composite chassis braces with Trinity's blue aluminum braces, which, with the chassis' rigidity, simply eliminate the possibility of flexing.

• **Suspension.** The stock composite parts can handle the power of the nitro engine and are probably what the average person will use in this conversion, but I decided to use GPM* aluminum hardware to trick out the Nitro TC3's suspension. I replaced all the molded arms, hubs and mounts with the GPM aluminum equivalents. These arms don't offer any real performance gain, but their increased rigidity should isolate the suspension more effectively. I did notice that the parts fit very tightly and cause the suspension to bind more than the stock composite arms. With a little patience and a reamer, I was able to free the suspension considerably.

• **Shocks.** The stock TC3 shocks are used for damping. I filled all four with Losi's 60WT Certified silicone shock oil because I'm setting the car up for a smooth, flat track and don't want any unnecessary body roll that would scrub off speed. I also replaced the shocks' stock O-rings with a silicone set from GS Racing*.

I replaced the stock composite shock towers with GPM's carbon-fiber towers and aluminum mounts. The towers themselves are a plump, 4mm thick for

extra rigidity. They retain the stock shock- and camber-mount locations, so tuning options are plentiful, and there aren't any handling surprises. For some additional color, I also added Trinity's Kinwald Pro shock bushings; these not only look cool, but they also eliminate slop.

• **Drive train.** With the exception of the GPM spur-gear adapter and the Associated Nitro Dual Sport spur gear/clutch bell, the TC3 conversion uses the stock drive train. Because there isn't a 2-speed, I used a large, 22-tooth clutch bell to get the tallest possible gear ratio.

• **Brake.** The conversion includes a drum-brake setup; the rear drive cup has been replaced by a hardened-steel unit. The conversion doesn't include brake pads, so I used Losi* NXT pads to increase braking action. MIP CVDs are included in the kit, and they follow the same blue theme.

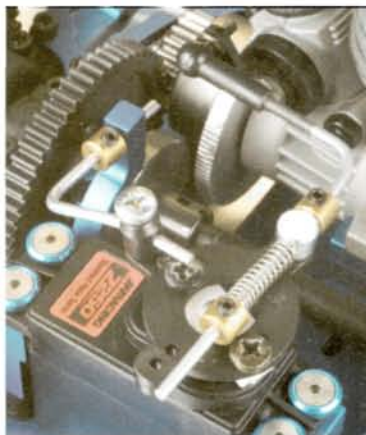
• **Steering.** I replaced the stock composite rack with an aluminum version from GPM. The parts retain the stock geometry, so steering response isn't changed.

• **Engine accessories.** The conversion suggests an Associated RC10GT fuel tank, though with some custom fitting, you could install certain other tanks. I used GS Racing fuel tubing for both fuel and pressure lines. GS also offers high-quality exhaust couplers in a variety of colors; I chose blue, of course.

• **Other goodies.** The sharp-looking, all-aluminum wheels are HG's* new 5-spoke LeMans design. They look extra sweet with Losi's low-profile sedan slicks in the high-traction/low-wear yellow compound.

The servo/transponder mount is a JT Racing* product that not only looks good but also spares you from having to poke a hole in the body for the transponder.

Continued on page 191



A slide carb would have neatened this mess. This rotary-carb setup came straight off the Trinity website. It might look a little goofy, but it never failed. You will definitely have to use this setup if you use a rotary carb, but I suggest that you use a slide carb if you can.

Associated's new engine

Associated's new .15 engine is the result of a collaboration with TTR (Thunder Tiger Racing) and features ABC construction, true 90-degree porting and a one-piece crankshaft. This "small-block" .15 offers exceptional power, and it doesn't take long to install in the conversion. To keep the tuned pipe between the front and rear wheels, the kit requires a U-shaped Tamiya exhaust manifold. I attached Associated's blue tuned pipe to the Tamiya-style header to finish the exhaust system.





Hudy Executive Automatic Lathe

Push-button precision by Steve Pond

Since the big RC boom of the '80s, motor lathes have been a fixture in electric RC racing around the world (before that, ambitious racers adapted commercial lathes to RC use). Motor lathes have become so common that it's not unusual to see half a dozen racers bring them trackside, even at local events. A few manufacturers make high-quality comm lathes (as seen in the "Motor Lathe Guide," May '99 issue), but one company in particular has established itself as the maker of some of the finest-quality lathes money can buy. Hudy* of Europe has been making high-end components for discriminating drivers in the upper ranks of 1/8-scale on-road racing for many years, but it has only been a couple of years since Hudy decided to enter the electrics market. Hudy now offers a full complement of professional motor lathes, and the Executive Automatic lathe is the company's top-of-the-line model. The Executive Automatic merits "Product Probe" attention because it is the first automatic, self-contained motor lathe made for the RC market; other companies have offered optional, add-on motorized drives for hand-operated lathes, but Hudy is the first to build an all-in-one unit.

SPECIFICATIONS

Dimensions (LxWxH): 7.5x3.9x2.8 in. (190.5x99.2x72.2mm)

Weight: 43 oz. (1,220g)

Power req'd: 12 volts

Cross-feed increments: 1 notch = 0.0004 in. (0.01mm) cutter movement

Available for: about \$320 (not including diamond cutter and axial support)

PART NUMBERS

- 10 1500-B—Executive comm lathe with ball-bearing guides
- 10 1500-V—Executive comm lathe with hardened-steel V-guides

OPTIONAL PARTS

- 10 1080—Hardened-steel cutter
- 10 1081—Diamond cutter
- 10 1900-B—Axial support w/ball-bearing guide
- 10 1900-V—Axial support w/hardened-steel V-guide

FEATURES

The lathe comes packaged in a protective plastic box that's tough enough to withstand a strong blow from a falling object or anything else that could otherwise do serious harm. Open the box, and the lathe is completely assembled and ready to go with the exception of a cutting bit. Hudy offers both hardened-steel and diamond cutting bits. If you're stepping up to the Executive lathe, I strongly suggest a diamond cutter. On average, a Hudy diamond cutter will set you back about 70 bucks at the hobby shop. If you want a less expensive way out, any standard 1/4-inch lathe bit will fit the Hudy lathe, but I suspect anyone who has the dig to buy this lathe won't want to cheap out on the cutter.

To ensure the best cut, the cutter must be installed at the proper height. The instructions clearly state that the bit should have at least 0.2mm clearance between the tip and the ball bearing (or V-guide). For a lathe with the ball-bearing-equipped guides and the Hudy diamond cutter, the thick black shim (0.5mm) and the thickest of the brass shims (0.2mm) should be placed under the bit for proper clearance.

The Executive Automatic includes uprights much like those seen on Hudy's manual lathes. They are precision-machined aluminum plates that have either ball-bearing or hardened-steel V-guides that the armature rests on. The bed, saddle and a cross-slide are machined of high-quality aluminum and then black anodized. The slide bushings are made of Teflon, and they're adjustable, so tolerances can be kept as tight as possible, much like other Hudy lathes. This, however, is where the similarities end. On the left of the lathe is a black box that houses two electric motors: one to drive the lead screw during operation and the other to spin the armature. The black box also houses the electronics designed to control the motors, and the switches that control the lathe's movements are on its front panel.



The switches on the front of the lathe control all of the movements. The three-position switch on the upper left determines whether the lathe will make single or multiple passes in both directions. The knob just below, on the left, sets the speed at which the cutter moves across the surface of the commutator. The second three-position switch, next to the fuse, activates the slave and feed motor for full operation or just the feed motor for quick setup.

The switch on the top left controls the movement of the automatic cross-slide—the mechanism that feeds the bit across the surface of the commutator. When switched to the left, the position with the double lines, the cross-slide will travel across the face of the comm and automatically switch back in the other direction. Returning the switch to the center position can stop this motion, or it can continue to cycle back and forth to allow more cuts until the job is finished. Toggling the switch to the single-line position on the left operates the cross-slide in just one direction. The cutting tool travels

across the face of the comm from right to left toward the windings; then it simply stops when it reaches a preset position. The primary benefit of this mode is that it

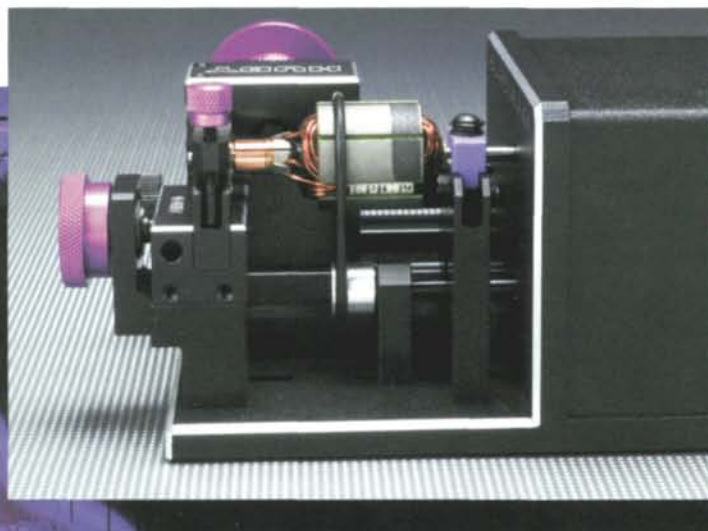


Inside the "black box" are the slave and feed motors and the sophisticated electronics that control the lathe's movements.

I tested the Executive with the optional axial support (on the left, supporting the armature near the commutator). The axial support is available in ball-bearing and V-guide configurations and eliminates the need to shim the armature between the supports.



The knob on the lower left is for quickly adjusting the point at which the feed for the cutter stops. This adjustment takes about 5 seconds. Note the ball-bearing guides on the optional axial support.



But is it a better cut?

Sure; the Executive Automatic lathe is ultra-trick, and you will be the envy of all the guys at the track when they see it do its robo-cutting thing, but it seems silly to unload your manual lathe for an automated one, just for the gee-whiz factor. I'm glad to report that the Executive lathe really does deliver a more precise cut.

Hand-operated lathes seem to "blip" if the cross-slide wheel is jerked while it is turned, or if it is turned at an uneven speed. Your cuts get smoother with practice, but because a cross-slide wheel is usually very small, it's hard to turn it smoothly and at a constant speed.

The Executive lathe is all about smooth, constant speed, and it shows in the cuts; they are perfect every time. The comm isn't any truer than it would be with a hand-operated lathe, but the finish is better. That can only help the critical brush/comm interface, and that's why you buy a lathe in the first place.



Advanced lathe

More Hudy Lathes

The Executive Automatic lathe is a great piece of hardware, but it's a significant investment; for those of us whose wallets bulge less than an Internet mogul's, Hudy offers more conventional lathes built with the same precision as the Executive. These aren't stripped-down models, though; they have some unique features of their own.

Advanced comm lathe. Hudy's "standard" lathe is the Advanced; it drives the armature via an O-ring "belt" that wraps around the armature stack and a pulley mounted directly to the motor—just like most other lathes. Unlike other lathes, the Advanced includes a hard plastic case (like the Executive Automatic's), a factory-wired on/off switch and an installed Hudy drive motor. The Advanced is offered with ball-bearing guides or hardened-steel "V" guides.

Tech comm lathe. Now that rebuildable stocks allow the armature to be removed for cutting, most racers have abandoned stock-motor lathes, but there are holdouts who still have lucky-charm stock motors or who race in organizations that do not allow rebuildable stock powerplants. If that sounds like you, check out the Tech lathe; it can be configured for conventional comm cutting or in-the-can cutting with sealed stock motors. The secret lies in the in-line motor placement that allows room for a full-size motor can when cutting comms with the armature still in the motor can (you'll need the optional stock motor holder, which you can buy separately or purchase with the Tech lathe as the "Multipack" model). Otherwise, you get the same features as with the Advanced lathe, including a Hudy drive motor, the case, an on/off switch and "V"- or ball-bearing guides.

The Tech lathe is equipped to cut the comm of any modified or rebuildable stock motor. Adding this optional bracket (left) allows you to cut the comm of fixed-end-bell stock motors as well.



Tech lathe

allows quick setup, but the single-pass-in-one-direction faithful may also find this mode useful for cutting the comm.

Below the aforementioned switch is a six-position knob that controls the speed of the cross-slide. Its range of speeds is broad—from very slow to as fast as you'd want to go—and all are usable for cutting the comm.

On the right of the black box, closest to the cutting hardware, is another three-position switch that can power both the armature and the cross-slide motors, just the cross-slide, or the "off" position. The "both" position is used primarily for the final cutting operation, while the cross-slide-only position is used during the initial setup.

Last, a 20A fuse is installed in the front panel to protect the vital components of the lathe if it becomes jammed. It's a standard automotive fuse that can easily be replaced.

HOW IT WORKS

I was skeptical when I first heard about the Executive Automatic lathe; I thought it would be a hassle to set it up to cut a comm, and I predicted that in the time it would take to get it set up, I could finish cutting a comm with a manual lathe. But after using the lathe for just a short time, it was quite obvious that Hudy had spent a lot of time designing the Executive to avoid that very pitfall.

The initial setup involves shimming the armature between the supports, similar to what's required with almost any other lathe. I later tested the Executive with the optional axial support, an adjustable guide that replaces the shimming process with an adjustable thumbwheel to further reduce setup time.

After the armature has been installed, the lathe must be connected to a 12V battery or power supply. I've run the lathe on as few as 6 cells (7.2 volts), but it doesn't always function properly when underpowered, so I recommend sticking with the suggested 10 to 15V range.

The third and final step in the setup is to set the position at which the cutter will stop. This is done by selecting the one-direction mode on the feed switch and the support-only position on the power switch. This feeds the cutter to the left toward the tabs on the commutator. A small black thumbwheel on the right side of the cross-slide is used to adjust the distance the cutter will travel before it stops. Setting up without the armature spinning makes it easier to see the tabs that you want to avoid hitting with the bit. Adjusting the thumbwheel causes the cross-slide motor to feed the bit closer to the tabs in small increments until you've reached the desired point. It takes only about 5 seconds to complete the stop adjustment, and then you're ready to start cutting the comm.

Flip the power switch to the "cutting and support mode," and the armature will start spinning with the cutter in the far-left position. I like to mark the comm with a black permanent marker to make it easier to see when the cutter makes contact with the surface of the comm. Once the cutter has made contact with the comm, simply flip the feed switch to the center position, and the cutter will feed across the comm to the right. Feed the cutter toward the comm about half a notch on the indexed thumbwheel, and you'll be ready to make as many full passes as are required to finish the job. Each time the cutter feeds back to the right and off the edge of the commutator, you can flip the switch to the "off" position to check your progress. If another pass is needed, simply feed the bit in another half step and flip the power back on. The Automatic starts right where it left off.

THE FINAL CUT

It's much easier to use this lathe than it is to explain how it works. The setup process is every bit as quick as it is with a manual lathe and possibly quicker. The real benefits, though, are the speed and precision with which the comm is cut. The set-it-and-forget-it ease of operation makes the actual cutting quicker, and the automatic-feed mechanism ensures the highest-quality cut available. There's no question that the Executive Automatic is the most sophisticated lathe available; its precision simply cannot be matched by a hand-operated lathe.

*Addresses are listed alphabetically in "Featured Manufacturers" on page 200. ■

Just playin' through

Ever wonder what team drivers do when they're at a big event for two weeks? They go golfing. Team Yokomo drivers Barry Baker and Chris Tosolini were recently on a golf expedition during the 2000 ROAR On-Road Nationals. Everything was going well when the Florida sky decided the boys could use some water. They scurried into their golf carts and headed back to the clubhouse. Barry decided he knew some Mario Kart shortcut, and after traveling down a side street for about 10 minutes, he popped out into traffic on a main road. The local authorities nabbed him and quickly escorted him back to the golf course. Barry didn't get a ticket, but his handicap was raised.



IFMAR WARM-UP RESULTS



The 2000 IFMAR On-Road World Championship warm-up race was recently held in Tokyo, Japan, and it looks as if Yokomo is going to be a dominant force (home-track advantage, anyone?). Here are the top 10 drivers.

- 1 Masami Hirosaka (Yokomo)
- 2 Barry Baker (Yokomo)
- 3 Hideo Kitazawa (Yokomo)
- 4 Atsushi Hara (Yokomo)
- 5 Shinnosuke Adachi (Yokomo)
- 6 Daisuke Yoshioka (HPI)
- 7 Takashi Kato (Yokomo)
- 8 Akira Suzuki (Yokomo)
- 9 Hiroyuki Matsumoto (Kyosho)
- 10 Billy Easton (Associated)

Brian Kinwald goes 1/8 scale

World champion driver Brian Kinwald has moved into the ranks of 1/8-scale off-road racing. Brian will be behind the wheel of the new Kyosho MP 7.5; he plans to run it whenever he attends a major off-road gas race. At his first race, the ROAR off-road gas Nats, Brian took home a win after leading for nearly the entire race.



Factory Team T3 on the way

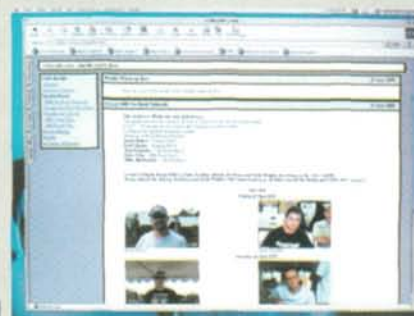
In this issue, we present a review of the Factory Team B3 and GT, and we just got wind that Associated is in the process of packing up Factory Team T3s. They should be hitting hobby-shop shelves soon, and like the Factory Team gas trucks and buggies, the T3s will include all the Factory Team options packed in one box.

Squirrel alert

Be aware of this man in the pits. We caught Scott Hughes gnawing on his antenna tube; no wonder they call him "Squirrel." We are making the public aware of his actions because we fear he may move on to competitors' antennas, especially the ones with the black caps.



SITE SEEING



WWW.RCRESULTS.COM

If you want to find out who won a race almost anywhere in the world, you can log on to www.rcresults.com to check out final race results. This site contains only the results; if you're looking for blow-by-blow coverage, see it here in *RC Car Action* first.



SPEED SHOP



Trinity Blue Aluminum TC3 Accessories

Trinity* now offers aluminum parts to strengthen your TC3 and add some style, too; you can replace the stock composite transmission braces, front/rear suspension-arm mounts, steering rack, bearing cap and shock bushings with blue aluminum units. The lightweight Kydex transponder mount replaces the stock Lexan mount. All of these parts are currently available.

TC3 suspension arm mounts (F/R)—part no. TK5033/TK5034; \$29.99.

TC3 corner braces (F/R)—TK5032/TK5031; \$33.99.

TC3 Blue steering rack—TK5039; \$34.99.

TC3 Transponder mount—TK5040; \$2.89.

Kinwald Pro shock bushings—TK5041; \$7.99.



Tamiya TB-01 Hop-up Options

Tamiya* displayed a full-option TB-01 at the 39th annual Shizuoka hobby show recently, and it looked like an excellent racecar. If you want to get your TB-01 in race mode, these parts will definitely suit your needs.



The carbon-fiber frame set gives you everything you'll need to convert the car from its plastic tub to a rigid carbon-fiber platform. The motor mount (left) is also a must-have item; however, it's sold separately. It replaces the stock plastic parts with a sturdy lightweight mount that adds strength and has heat-dissipating abilities.

Carbon-fiber frame set—53408; \$89.99.

Aluminum motor mount—53403; \$35.99.



Ott-Lite

A valuable tool that many racers don't think to include in their pit bags is a good light. The Ott-Lite* task lamp is a true-color light that allows you to view colors as if seen in daylight. It also reduces glare and distortion without using the heat and power of a regular light. These lights are excellent for detailing bodies indoors or for pitting outdoors during nighttime events. The Ott-Lite measures 10.5x3.5x3.5 inches with its case closed, and it turns on automatically when you swing it open; the included 13W tube-type bulb puts out as much light as a 75W incandescent bulb. A handle on top makes it easy to carry, and the long power cord can easily reach the ground from your pit table.

Ott-Lite true-color lamp—OTL13TCG; \$69.95.



SPEED SHOP



KO Propo **Push-button switch**

Over time, mechanical switches often fail because of repeated use. Time to get with the electronic era and install an electronic switch. KO Propo's* switch is for use in nitro-powered vehicles; it plugs in between the receiver pack and receiver, just like a mechanical switch. To turn it on, push and hold the button for a second; repeat the procedure to turn it off. If the battery's voltage drops below 4.3, an LED on the switch's face blinks as a warning, and the charge cord allows you to charge the battery without unplugging it from the vehicle. **Electrical switch—part no. 60224; \$29.99.**

Trinity/Picco **Collets**

Hold everything! Before you try to install a Kyosho or Traxxas clutch on a Trinity Picco engine, be aware that you're going to need a special collet. The collet supplied with the engine will not fit into these clutches properly, but Trinity has the parts you'll need. **Kyosho-style collet—TP0002; Kyosho collet—TP0003; \$1.49.**



OFNA $\frac{1}{8}$ **dish rims**

Dish rims have always been the rims of choice for electric off-road racing and, more recently, for sedan racing. Now they are available for $\frac{1}{8}$ off-road buggies. OFNA* has released these good-looking new dish rims to fit any buggy with a 17mm hex. They are sold in packages of four and are available in white, black and yellow. **Dish rims—86040 (white), 86041 (yellow), 86042 (black); \$19.95.**



Team Kinwald **Bomb 2 inserts**

Unless you have super-power X-ray vision, you can't tell which foam inserts the pro's are using in their tires. So how would you know Matt Francis used Trinity's Team Kinwald Bomb 2 dual-stage standard inserts to win the 2000 Winterchamps? Well, now you know. The inserts help reduce sidewall flex to increase stability and traction on hard-packed tracks, and they've also been proven to work well on packed dusty tracks. The inserts are available for trucks and buggies. **Bomb 2 inserts—TK1523 (truck), \$4.50; TK1524 (buggy), \$3.50.**

5 QUESTIONS

Age: 21

Favorite class: 1/12 mod

Home track: RC

Madness, Enfield, CT

When I'm not racing:

I street-race in my Mitsubishi Eclipse GS-T and drink lots of Dunkin' Donuts iced coffee

Sponsors: Associated, Novak, Reedy, Hitec, Pro-Line, Protoform, Kimbrough, R.B.-R.C.



Mike
Dumas

RC Car Action: When you're at a big race with the rest of the team, do team members get the fast stuff in any particular order, or does everybody get the same level of batteries and motors?

Mike Dumas: Usually, top drivers like Pavidis get special attention. They have been racing for years and are usually in the top ten. Being lower on the chain means you have to prove yourself to get extra attention. The team members all help with setup, but when it comes down to batteries and motors, the guy with the best chance of winning gets the best stuff. That's how it goes in any form of racing.

RCCA: Which areas could you improve in as a professional driver?

MD: I honestly don't like to work on my cars. If I could just press a button on a vending machine and have a hooked-up car fall out, that would be the greatest. Seriously, some people say that it's not the car, it's the driver, but at the level of competition I race in, if your car isn't set up properly, you will be dropping letters in the Main quickly.

RCCA: Does it help you to practice at your hometown track?

MD: Being the fastest guy at the track, especially at the local level, doesn't really help me get much faster. Practicing with people who are faster than you are is what makes you better. You get to watch the lines they take and see what they do to their cars to make them faster. When I am racing with the locals, it actually helps them. Fortunately, I don't mind helping people out.

RCCA: I see you brought your girlfriend, Emily, with you. Does she attend the races?

MD: Sometimes she comes to the races and hangs out

Emily: I like going to the races; it lets me meet the people I read about in *RC Car Action*. I asked him the other day if he felt he did better with or without me. He said it didn't matter, but I like to watch him.

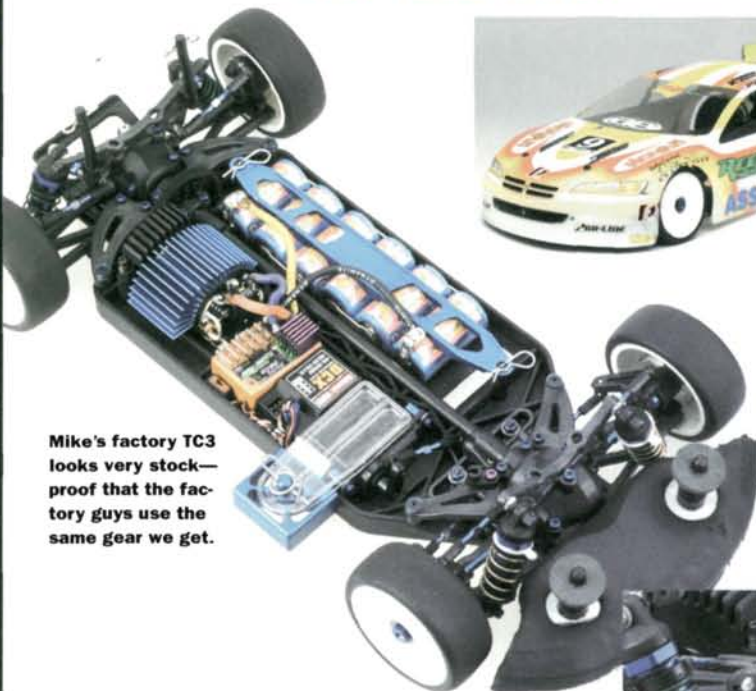
MD: That's because all the guys flirt with her. You know how it is at a race—guys and more guys.

RCCA: What was the worst RC-related injury you sustained while at a race or at home?

MD: During the 1994 Regionals at RC Madness, I was walking off the drivers' stand, which at the time had no railing going down the ramp. I was talking to my buddy, who was kind of leading me, and I walked right off the drivers' stand; about four feet off the ground. It felt like a cartoon: I was walking, and the next time I looked down, there wasn't a ramp below me—I think a coyote fell on me afterward. I ended up breaking my radio and getting pretty scuffed up, but it was worth the laughs I got from everybody.

UNDER THE HOOD

MIKE'S HIGH-BITE/HIGH-TEMP ASPHALT SETUP



Mike's factory TC3 looks very stock—proof that the factory guys use the same gear we get.



Mike's paint scheme is unique. If you think this is an Accord, look again; it's a Stratus with Accord headlights.



Left and right: Mike used spacers to bring his TC3 up to maximum legal width.

MODIFICATIONS

Surprisingly, Mike's TC3 was basically stock. He added all the graphite components to stiffen up the car and reduce weight, and he widened the car by modifying two large nylon body washers to space out the wheels. This stretched the car's width to the max and made it easier to drive. Mike's 5mm ride height was to compensate for the bumpy track conditions. Last, he moved the antenna to the front of the car. Why? "Boredom, I guess."

FACTORY OPTIONS

GRAPHITE PARTS

■ chassis—part no. 3849 ■ arms (F/R)—3861/3891 ■ shock towers (F/R) 3882/3896 ■ front block carriers (4°)—3873 ■ hub carriers (F/R)—3877. Factory blue parts: ■ counterfelt transponder—3968 ■ 8-32 aluminum lock-nuts—6943

MEDIUM-BITE ASPHALT SETUP

	FRONT	REAR
Caster/squat	4°/F2	Stock
Camber	-1° and 1/2°	-1°
Toe-in/out	0°	3° in
Ride height	5mm	5mm
Shocks		
—fluid	50WT	40WT
—piston	No. 2	No. 2
—spring	Gold	Green
—mounting location (upper/lower)	Outer/stock	Inner/stock
Camber-rod location (hub/bulkhead)	Stock/lower inner (no shims)	Outer/lower inner
Limiters	5	2
Swaybar	HPI purple	Stock black

EQUIPMENT

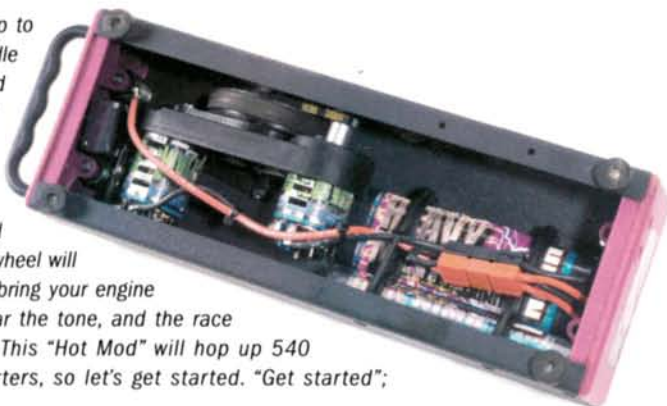
BODY: Protoform Dodge Stratus
RADIO: Hitec Lynx 3D
RECEIVER: Hitec DCX
SERVO: Hitec HS-945MG
TIRES/WHEELS: Pro-Line Velocity/Pro-Line slicks
INSERTS: Yokomo medium
TRACTION ADDITIVE: None
GEARING: 100/30
SPEEDO: Novak Cyclone TC
MOTOR: Reedy Millennium wind 8-triple
BATTERY: Reedy 3000s



HOT MOD HOW TO

BUILD A BETTER STARTER BOX

Have you ever run up to the track in the middle of the warm-up period of a nitro race only to have your starter slowly turn the engine over? You bop the car up and down and hope the wheel will spool up enough to bring your engine to life. Then you hear the tone, and the race starts without you. This "Hot Mod" will hop up 540 motor-powered starters, so let's get started. "Get started"; stupid joke, I know.



■ **STEP 1. Tear down your starter box and toss the 540 stockers.** I also recommend you get rid of the plastic-insulated wiring, if so equipped. Some starters include wire that just isn't suitable for high-draw applications such as this one.



■ **STEP 2. Select two upgrade motors.** Any pair of competition stock motors will do, but I wanted some extra power, so I chose two Trinity Speed Gem 17x2 Sapphire motors. Bolt them in where the stocks were, and check the belt tension.



■ **STEP 3. Upgrade the wiring.** Here, I'm soldering in GS Racing's* 12-gauge silicone wire. This larger gauge allows the current from the batteries to flow through with little resistance.

■ **STEP 4. Install batteries.** Notice I'm using two 3000mAh packs with Acer Racing* connectors, which I also used on the wires leading to the motors. By replacing these connectors, you can easily hook the batteries together in series as a 12-cell pack for maximum voltage yet take them apart to charge them separately as 6-cell packs.

At last: a starter with enough power to turn over the most stubborn engine. Of course, none of this will work unless your packs are fully charged. I usually charge them before a day of racing and then, just as a precaution, right before the Main.



LAST LAP

Nitro racers can choose "off-road" .21 engines or "on-road" .21 engines, but .12 engines are not application-specific. Do you think .12 engines should be offered in "on-road" and "off-road" versions?

I would like to see different .12 engines, but only if the prices stayed the same for both genres. There is a market out there for both versions, but the manufacturer can't favor one over the other. I would give it a go as long as prices are reasonable for both versions, and the quality still stays topnotch.

—Nick Fahim

In a way, yes, and in a way, no. I think it would help to distinguish differences between an engine designed for off-road or on-road applications. But the downside is that there will be hundreds of engines to choose from, and it could be difficult for someone just starting out in nitro vehicles to search through all these engines to find the one that suits the application they need it for.

—Michael Horgren

I wouldn't like to see "on-road" and "off-road" engines as much as I would like to have an industry-accepted dyno comparison so I can select an engine for my on- and off-road vehicles based on real rpm and torque data.

—Brad Czerniak

Yes, I would, because when I race electric, I use a different turn/wind of armature for on- and off-road. I would like to see on- and off-road engines, and maybe an in-between for the non-serious racer who would like to use the same engine in both conditions.

—Ross Young

I would like to see a choice because the engine manufacturers can actually make an engine that's better suited to the turf the vehicle is going to run on; that way, they would probably make off-road engines more durable instead of making a non-specific engine for both on-road and off.

—Jason Goh

NEXT MONTH'S QUESTION

Which RC discipline produces the most talented drivers? Choose any category— $\frac{1}{12}$, $\frac{1}{10}$, $\frac{1}{8}$, 2WD, 4WD, on-road, off-road, oval, etc.

Email your responses to gregv@airage.com.

Type "Last Lap" in the subject box, or log on to "Last Lap" at www.rccaraction.com.

REEDY TOURING CAR RACE OF CHA

Sponsored by Reedy ■ Team Associated ■ Pro-Line



by Kevin Hetmanski

This year, the 3rd Annual Reedy Touring Car Race of Champions was held at Ripon RC speedway in California. Big-name racers Barry Baker, Chris Tosolini, Teemu Leino and others from all around the world came to compete at this exciting event. Racers were divided up into three classes: Open Stock, Open Mod and Invitational. With top drivers and a topnotch race facility, great racing and a good time were guaranteed, and that's exactly what everyone was treated to. The racing was hot all weekend and so was the track: 135 degrees F, to be exact! Here are some of the highlights.



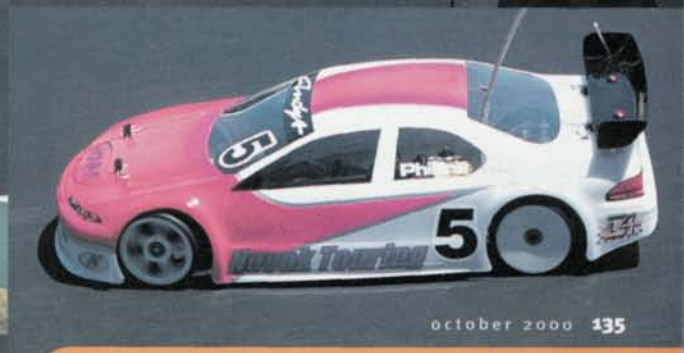
CHAMPIONS

■ Yokomo

Ripping it up on Ripon



The invitational classes brought out many spectators. I would have paid admission to watch these racers run; they put on an excellent show.





REEDY TOURING CAR RACE OF CHAMPIONS



Meet Sean Cochran (right); he will take charge of Reedy Modifieds when Mike Reedy retires. Sean has lots of experience from working at Racetech. He is also an accomplished on-road racer.

OPEN QUALIFYING

Four rounds of qualifying determined where the racers would be placed in the Mains. Three rounds were run on Saturday and one on Sunday morning. IFMAR starts were used for qualifying so each racer ran under his own clock.

• **Stock.** Joey Orlanes was the number-one qualifier with 20 laps at 5:14.02. James



Before each round of racing, each car had to be brought to the tech table to be thoroughly checked by the tech officials. If your car didn't meet all the specs, it wasn't allowed to hit the track.

Arluck was second with 20 laps at 5:15.45. Jason Moberly qualified third, very close to James, with 20 laps at 5:15.54.

• **Mod.** Jacob Pritchard TQ'd for the Mod A-main with 17 laps at 4:11.83. Mike McMahon was second with 17 laps at 4:12.79. Third in the "A" was Brent Wallace.

OPEN MAINS

• **Stock/A-1.** Joshua Utley jumped off the line to grab an early lead, followed by Joey Orlanes. A great battle commenced between Joey and Jason Moberly. At the 1:42 mark, Joshua bobbled and gave up the number-one position to Joey, who pulled away from the rest of the field and took the win. Rick Hermann placed second, and Joshua Utley finished third.

• **A-2.** Once again, Joshua Utley jumped into the early lead and retained it to end in first place. Marshall Keener, Rick Hermann and Joey Orlanes battled for second. When the dust had settled, Joey was victorious; Marshall Keener ended up third.

• **A-3.** The race began with Jason Moberly, Joey Orlanes and Marshall Keener running in that order. The real battle, however, was for third place at the 1:30 mark between Joshua Utley and Rick Hermann. Joshua showed everyone who's boss by taking the win. Jason Moberly and Rick Hermann finished second and third. After the points had been added up from the three rounds, Joey Orlanes went home with the trophy.

• **Mod/A-1.** When the tone sounded, Brent Wallace launched off the line to put his ride into first place. He was followed by Jason Moberly and Joey Orlanes. At around the 2-

minute mark, Brent Wallace and Joey Orlanes were swapping paint for third. At the end, Raymond Flores, Jacob Pritchard and Mike McMahon were the top three.

• **A-2.** Scott Haake was the star of this round. In the early laps, Rodney Kiss, Marshall Keener and Joshua Utley ran like a train around the track, battling it out for third place. Rodney flexed his muscles and took over third. Another good battle was among Scott Haake, Jason Moberly and Rodney Kiss for first at the 2:59 mark. Scott Haake took home the victory.

• **A-3.** A huge pileup in the first turn allowed Joey Orlanes, Brent Wallace and Jacob Pritchard to pull away from the field. Joey and Brent traded places for the lead, and Joey ended up opening a large gap and saying goodbye to Brent. Joey won the race with Brent and Jacob close by. The first-place Open Mod trophy went home with Jacob Pritchard.



This is what happens when you let someone else sticker your car. I think I see a spot for one more.



Gary Owen from Team Associated honored us by singing the National Anthem. It almost brought tears to my eyes—almost.

THE TRACK



Ripon's on-road facility was built in 1997 for F1 racing, with lanes defined by Hobby People's molded plastic "boards." As racing became more popular, the track needed to be remodeled. In the spring of 1998, a new, permanent track surface was laid down—this time with smaller, beveled corners that were given colorful names, much like a full-scale track. The announcer called the corners by name during races so fans knew where the action was. A huge drivers' stand/announcer's booth looms over one side of the track and provides a great view of the action from every angle. Down below, the announcer's booth is fully air-conditioned (not too shabby!). Huge lights have been set up around the outside of the track for exciting nighttime racing. There are plenty of speakers strategically placed around the track so you can easily hear what's going on no matter where you are. A giant scoreboard lets everyone see which race is up, who's in which place, how much time is on the clock and which lap the leader is on. This track is first class all the way.





REEDY TOURING CAR RACE OF CHAMPIONS



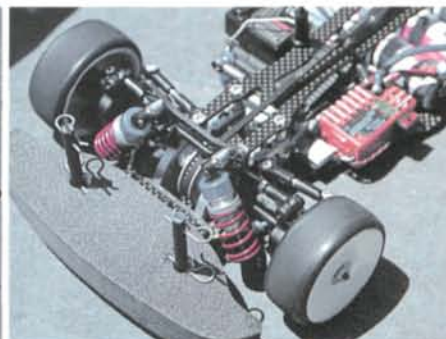
TAKING CONTROL

Touring cars are notorious for consuming lots of tires and lots of money to buy those tires. To cut down on costs, cars at the Reedy Race were run with Pro-Line control tires. The Open Stock and Mod classes were given three complete sets of tires, and the Invitational class participants were handed four sets. These were the only tires that racers were allowed to use during the entire weekend, although they were allowed to use any type or brand of rim and insert inside the tires. (Pro-Line blue inserts seemed to be the choice for most racers.)

It was easy to check whether racers were using the control tires: the tech inspectors simply looked for the small "R" molded on the tires' sidewalls. Checking to see whether racers were using only the three or four sets of tires they had been given was not as easy. To solve this problem, the folks at Ripon Speedway came up with a good plan: all drivers were given stickers with their last name and I.D. number printed on them. The Open-class drivers were given enough stickers to cover three sets of tires, and the Invitational-class drivers were given enough stickers to I.D. four sets. The Open-stock stickers were black, Open-mod were red, and Invitational were green. Different colors prevented racers from trading tires. After each set of tires had been assembled and glued, it had to be brought up to the tech table for inspection. After the tires had been given the go-ahead, they were signed by the person who had inspected them. As extra security, the person who did the inspection signed his initials, starting on the rim and ending on the sticker. This prevented racers from pulling off the stickers and putting them on another set of tires. Drivers who qualified for the A-main were allowed to buy an additional set of tires.



Here is a sneak peek at David Jun's TAO4 prototype. It features threaded shock bodies, sway-bars, increased rear toe and a one-way front diff. This car really ripped up the track.



INVITATIONAL CLASS

This class is composed of drivers invited by Mike Reedy (hence the term, "invitation-al"). Past champions were automatically included, while the other spots went to selected factory drivers. The winner was determined by eight rounds of racing—four on Saturday and four on Sunday. Before each round, the drivers were shuffled so everyone had a chance to race against different competitors throughout the weekend. There was no A-main to determine the winner; instead, the racers earned points for each finish—1 point for first, 2 points for second, and so on. In addition, each invitational race had a heads-up start, so racers had to be quick off the line. Forget IFMAR-style "racing against the clock"; these guys were out for position. Each day, the racers were allowed to throw out their

worst round. With close competition amongst a hand-picked field of elite drivers, it was not surprising that these eight rounds had some of the best racing ever. You would expect nothing less from these high-caliber competitors, and they drew a huge crowd every time they went out. Barry Baker dominated this class with his Yokomo, and Jimmy Jacobson and Shinnosuke Adachi finished second and third.



Barry Baker was on fire! He dominated every race he entered.

Invitation Class winners

FIN.	DRIVER	TOTAL POINTS EARNED DURING 8 ROUNDS
1	Barry Baker	6
2	Jimmy Jacobson	8
3	Shinnosuke Adachi	11
4	Mike Swauger	12
5	Chris Tosolini	13
6	David Jun	13
7	Mark Pavidis	15
8	Teemu Leino	15
9	Atushi Hara	17
10	Masami Hirotsuka	17



Motor limits in mod? It could happen.

Will motor limits come to mod racing?

The legalization of 3000 cells caused a shift in the thinking of the factory teams' motor guys; most of the modified racers used 7- to 8-turn motors to make up for the loss in speed caused by the lower voltage of NiMH batteries (10- to 12-turn motors are typical for Ni-Cd power). The strategy worked, but the very low-turn motors need to have their comms trued after each run, and this severely limits the useful life of the commutator. It might not be much of a problem for the factory-sponsored drivers, but it certainly is for the guys who pay their own way. To be competitive with the factory guys, they must run hot mods, too, and that can put a huge dent in the wallet. There was some talk around the pits of having races with a 12-turn motor limit for the modified racers, which would help keep down the cost of racing for everyone. Will it happen? We'll see.



REEDY TOURING CAR RACE OF CHAMPIONS

CLASS: TOURING-CAR STOCK

Fin.	Qual.	Driver	Chassis	Motor	ESC	Radio	Battery	Charger	Body	Tires (F/R)	Pinion/spur
1	1	Joey Orlanes	Yokomo MR-4TC Pro	Handout	Novak Cyclone	Airtronics M8	Team Orion	Novak Millennium	Andy's Stratus	Handout	24/78
2	2	James Arluck	Yokomo MR-4TC Pro	Handout	LRP V6	Airtronics M8	Fantom	CE Turbo	Andy's Stratus	Handout	24/78
3	5	Brad Long	Associated TC3	Handout	LRP V6	Airtronics M8	Peak	Tekin	Andy's Stratus	Handout	24/72
4	4	Marshall Keener	Associated TC3	Handout	Novak Cyclone	JR R1	World Class	Tekin	Protoform Stratus	Handout	24/72
5	3	Jason Moberly	Yokomo MR-4TC Pro	Handout	GM V12	Hitec Lynx 3D	GM 2000	GM Commander	Andy's Accord	Handout	23/78
6	9	Rick Herrmann	Schumacher Axis	Handout	Novak Cyclone	Airtronics M8	Fantom	Novak Millennium	Protoform Stratus	Handout	24/87
7	6	Joshua Utley	Associated TC3	Handout	Novak Cyclone	Futaba 3PJS	Gonzo	Victor Super 3	Protoform Stratus	Handout	27/72
8	8	Scott Haake	Associated TC3	Handout	LRP V7.1	Airtronics M8	Reedy	CE Turbo	Protoform Stratus	Handout	24/72
9	7	Rodney Kiss	Yokomo	Handout	Novak	Airtronics	Peak	Novak	Dodge Stratus	Handout	25/78
10	10	Don Vinkemulder	Schumacher Axis	Handout	Novak Cyclone	Airtronics M8	Trinity 2000	Tekin BC112C	Protoform Stratus	Handout	23/84

CLASS: MODIFIED OPEN

1	1	Jacob Pritchard	Yokomo MR-4TC Pro	Reedy	GM V12	Airtronics M8	Reedy R3K	GM Commander	Andy's Stratus	Pro-Line	18/78
2	3	Brent Wallace	Yokomo	Fantom	Novak	Futaba	SMC	Novak	Andy's	Jaco	18/78
3	5	Gil Losi Jr.	Losi Street Weapon	Trinity	Novak	Airtronics	Trinity	Novak	Losi Stratus	Pro-Line	19/82
4	2	Mike McMahon	Xpress	Team Orion	GM V12	KO Propo Mars	Team Orion	Team Orion	Protoform Stratus	Pro-Line	31/128
5	6	James Arluck	Yokomo MR-4TC Pro	Fantom	LRP V7.1	Airtronics M8	Fantom	CE Turbo	Andy's Stratus	Pro-Line	19/78
6	7	Jason Moberly	Yokomo MR-4TC Pro	GM	GM V12	Hitec Lynx 3D	GM 3000	GM Commander	Andy's Accord	Pro-Line	19/78
7	10	Jon Ringer	Yokomo MR-4TC Pro	Reedy	LRP	Airtronics M8	Trinity 3000	Novak Millennium	Protoform Stratus	Pro-Line	20/78
8	9	Rick Herrmann	Schumacher Axis	Peak	Novak Cyclone	Airtronics M8	Fantom	Novak Millennium	Protoform Stratus	Pro-Line	19/87
9	4	Raymond Flores	Tamiya TRF 414	Team Orion	Novak Cyclone	Airtronics M8	Team Orion	Novak Millennium	Andy's Stratus	Pro-Line	32/128
10	8	Joey Orlanes	Yokomo MR-4TC Pro	Team Orion	Novak Cyclone	Airtronics M8	Trinity 3000	Novak Millennium	Andy's Stratus	Pro-Line	-

FINAL THOUGHTS

Whenever this many great racers are gathered in one place at one time, the racing is

going to be fantastic. And not only was the racing awesome, but the event was very well run, too. Kudos to the folks at Ripon

RC Speedway for doing such an excellent job of running the 3rd Annual Reedy Touring Car Race. ■

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Upgrade your Car with Bearings

Fight the friction by Derek Buono

One of the first hop-ups suggested for any kit is a set of ball bearings. Although installing bearings is as simple as popping out the bushings and pressing the bearings into place, you would be surprised how many hobbyists (usually RTR owners) have said, "I just got a set of ball bearings, but I don't know how to install them or where to put them."

If you're a beginner, this article will help you, but don't think this info is just for beginners; you experienced guys might learn something, too.

Wheel and hub bearings. Two-wheel-drive vehicles usually have the front-wheel bushings within the wheels. This makes it easy to replace the bushings with bearings: just use the tip of an Allen wrench or thin screwdriver to push out the bushings, then press the bearings into place. If the bearings can't be pressed in with finger pressure, do not force them in with a steel tool, or you'll risk damaging them. Use the plastic handle of a screwdriver, a wooden dowel, or a similar "soft" tool instead.

In some 2WD cars and all 4WD cars, the front-wheel bushings are held in the hubs, and their removal requires additional wrenching; the steps are the same for most rear hubs:



1 Remove the wheels and camber links to make the hubs more accessible.

2 Pull off the drive hexes (if your car uses them) and slide out the axle crosspins (if they are pressed in, you'll need pliers to pull them out).

3 Slide the axle out of the hubs, tap out the bushings, and press the bearings into place.

If you can't push the bushing out from the opposite side of the wheel, gently pry it out.

A basic rear-drive layout. If you remove the camber link and take the roll pin out of the axle, you'll easily be able to access the bushings. Lay the parts down in the order in which they were removed so there isn't a chance of your losing pins or forgetting how many spacers go on which side of the axle.



Transmission. A typical transmission requires six bearings: two for the top shaft, two for the idler (middle) gear and two for the differential. To install them, remove the transmission and open it (keep your kit manual handy for reassembly). Remove the top shaft (you'll have to disassemble the spur-gear mount and the slipper clutch, if your vehicle uses one). To avoid mix-ups when you reassemble the tranny, lay the parts out in the order in which you removed them; then you'll be sure to reinstall them correctly.

Having disassembled the transmission, you can pop out the bushings and replace them with shiny new bearings. Top shaft and idler gear bushings are usually in "blind" holes and can't be pushed out; if you have to pry them out, "walk" them out by prying gently at different places and working them out gradually.

If you just jam a screwdriver into the bushing and force it, you're likely to distort the recess for the bearing, and that may lead to gear-mesh problems.

Bearings fit more closely than bushings and may sometimes be difficult to slide over C-clip slots or roll-pin holes. Remove any burrs left around such features with a file or a hobby knife. Remember to always cut away from yourself.

This Kyosho Ultima ST RTR was just asking for bearings. Here is a good shot of the locations of all six. By replacing the bushings with bearings, you will gain efficiency and extend drive-train life.



BEARING TYPES

■ **Shielded.** These are the basic upgrade from metal bushings. The shielding is typically a metal ring that covers the balls to prevent dirt from entering the bearing. When used in off-road applications, this type of bearing has to be cleaned and lubricated frequently to maintain its performance.

■ **Sealed.** This type of bearing has tightly fitting seals that virtually eliminate the chances of dirt entering the bearing.

There are three types of sealed bearing:

- fiber-sealed; these appear to have woven material over the bearing face.
- rubber-sealed;
- Teflon-sealed.

Rubber- and Teflon-sealed bearings have solid-colored faces.

All three types work well, but when new, sealed

bearings generally do not spin as freely as shielded bearings because of their tight seals. They "loosen up" and spin freely after a few runs. Rubber-

sealed bearings are the most impervious to dirt and water, but Teflon-sealed bearings offer the least friction.

All sealed bearings spin well—certainly better than any bushing—once they have been broken in. And except for needing an occasional wipe-down, sealed bearings need hardly any maintenance.

■ **Flanged and "plain."** Some kits require a flanged bearing that has a thin lip, or flange, on one side. The flange prevents the bearing from sliding straight through the bore of the part it's fit into. Most kits have countersunk bores that prevent a plain bearing from sliding through, but some do require flanged bearings. If your kit specifies a flanged bearing or you notice that the bushings you have removed have flanges, make sure the bearings you replace them with are also flanged.

Ever wonder what's behind the seal? Here is a quick breakdown of a Teflon-sealed bearing. The metal C-clip holds the shield in place. The shield seals the bearing and reduces the chances of dirt entering it.

BUYING BEARINGS

DuraTrax*, Dynamite*, Boca Bearing*, Acer Racing* and others offer bearings to suit any RC vehicle. You might be able to buy a set of bearings sorted and packaged specifically for your vehicle, so you won't have to piece a set together yourself.

If no manufacturer offers a bearing set for your vehicle and you don't have a manual to check the bearing sizes you need, just measure the bushings you removed. Measure the inside diameter (the hole in which the axle will spin) and the outside diameter (in millimeters for foreign cars, fractions of inches for U.S.-made ones) to obtain the correct bearing size. In the U.S., bearings are labeled by size, for example, $\frac{1}{4} \times \frac{3}{16}$. Metric bearings might have a code; for example, if a bushing measures 5x11mm, the corresponding bearing may be "1150" instead of "5x11mm." It's easy to decipher.

Bearing maintenance

To minimize friction, shielded bearings must be regularly cleaned and oiled. Bolink*, Trinity*, Niftek* and others offer oils that have been specially formulated to do the job.

Preventive maintenance is also a key to maximizing the performance of shielded bearings. Between runs, brush dirt off exposed bearing areas and remove the bearings for cleaning before they feel gritty or start to make crunching sounds.



A good blast of motor spray will do a fairly good cleaning job, but for the best results, use a bearing-cleaning tool from Robinson Racing* or RPM*. The devices clamp the bearing in such a way that cleaning fluid is forced through it, taking the grit and old lube out with it. For the smoothest operation and longest life, always lubricate the bearings after you've cleaned them.

Put the bearing into the cleaner to force motor spray into the bearing race and force dirt out. After cleaning the bearing, be sure to relube it.



SEATING THE BEARING



Viewed straight on, the bearing in the hub carrier looks perfectly seated. If you could see inside the carrier, you would see that the bearing is not sealed properly in the hub carrier. This could cause unnecessary friction or problems getting the axle through both bearings. Make sure the bearings are fully seated by using the handle of an Allen wrench or the axle itself to seat the bearing properly.



Problem corrected. The bearings are properly seated in the housing. Proper alignment is critical to obtaining the smoothest possible drive train.

*Addresses are listed alphabetically in "Featured Manufacturers" on page 200. ■

Project OFNA Monster Blazer



Kyosho's Nitro USA-1 was the first .21-powered monster truck to exploit an 1/8-scale buggy chassis, but it isn't the only game in town. Since it hit hobby shops last year, the OFNA* Monster Blazer has steadily gained in popularity, and it is frequently the subject of emails I receive, most of which go something like, "How can I hop up my Monster Blazer?" From cheap mods to exotic add-ons, there are bound to be a few tricks in my Project truck you can use on your Blazer. Here's what I did to the truck after its May 1999 review.

DRIVE TRAIN

• **Front and rear diffs.** I started by tearing down the Blazer to its bare bones. I completely disassembled the front and rear differentials and cleaned off all the grease inside. After I had reassembled the diffs, I filled them with 5000WT silicone oil. This tones down the diff action

and gives the truck a little more traction when turning. After I had filled each diff, I applied a light coat of gasket sealant to where the diff meets the diff gear to seal in the silicone.

• **Center diff.** To minimize flexing, I replaced the center diff mounts with aluminum pieces. These parts are trick, but the diff they hold is even more interesting: I installed OFNA's Torsen unit; it allows normal diff action but "locks up" in those situations when a regular diff would unload. For example, when the Blazer launches, it likes to lift the front wheels. A stan-

dard diff unloads into the front gearbox, diverting power from the rear wheels, which have all the traction. The Torsen diff keeps all four tires hooked up—exactly what a monster truck needs.

• **Drive shafts.** I replaced the dogbones between the center diff and the outside diffs with MIP* CVD center drives that spin much more smoothly than dogbones. To keep the rear dogbones in place, I replaced the O-rings inside the drive cups with fuel tubing cut to the proper length (3mm in each diff outdrive).

• **Brakes.** No matter how strong your brake servo is, slowing a truck as hefty as the Blazer can be a problem. I replaced the stock steel calipers and composite disc with a steel disc and composite padded calipers.

SUSPENSION

• **Arms and hinge pins.** I was looking for extra beef here, so I replaced the pivot braces on each



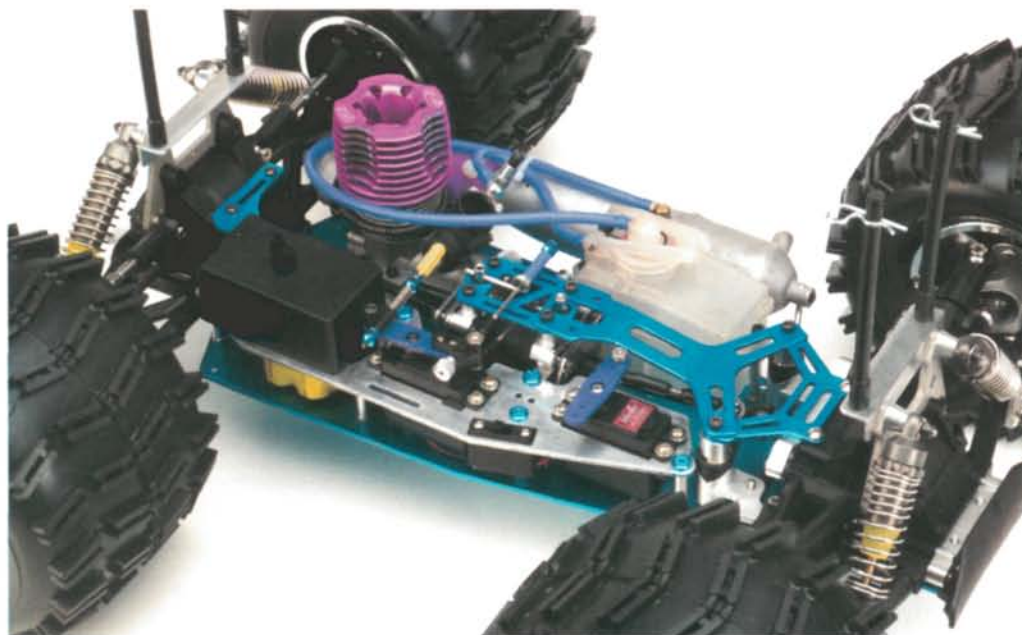
Picco power. This mill can actually light up all four Pro-Line Giant Trac tires!

gearbox with strong aluminum units. These pieces prevent the suspension arms from spreading under hard use. For additional strength, I replaced the stock hinge pins with titanium ones that are lighter and much stronger than steel, and I replaced the upper suspension with adjustable titanium rods. These bad boys will never bend!

• **Shocks.** Although the kit's plain aluminum shocks work fine, I replaced them with OFNA Super Shocks. The Supers' hard-anodized bodies and coated shock shafts provide extra smoothness and long life. To give the truck more control, I used a thicker oil—Associated 40WT silicone.



Only Marines get tougher workouts than the Monster Blazer's steering parts. If you add just one hop-up to the Monster B., make it OFNA's aluminum bellcranks.



It's almost a shame to cover this chassis with a body! In addition to performance tweaks, I added colored fasteners and fuel line from GS Racing for the all-important custom look.

STEERING

• **Bellcranks.** The stock plastic bellcrank arms were too flexible, so steering was a problem, even with a high-torque servo. I replaced the bellcranks with aluminum arms—no more flexing. To make the steering more responsive, I also added aluminum bellcrank posts and ball bearings.

• **Tie rods.** For increased reliability, I replaced the stock adjustable steel rods with Lunsford's* titanium units.

ENGINE

For this project, I used a new OFNA Picco .21 engine. It is powerful and reliable—a good choice for this truck. OFNA's finned aluminum engine mounts hold the engine on the chassis, and the small fins help to keep down engine temperature.

CHASSIS

The chassis' front end is a little too flexible for me. I added OFNA's

optional front brace to strengthen the it. I removed the radio plate and stripped off all the blue anodizing. I then polished the plate to a mirror-like shine to match the aluminum hop-up parts. The plate is held down with anodized screws and washers from GS Racing*.

RADIO GEAR

• **Servos.** A Hitec* 605BB servo opens the throttle on the engine and pulls the reins on the truck. A Hitec 945MG servo turns the tires. With 129 oz.-in. of torque, this servo has the strength required to muscle the Blazer through turns when it's time to get down to business.

• **Transmitter and receiver.** A Hitec Lynx 3D radio controls my truck. It sends the signal to a Hitec DCX receiver. The receiver has two filters instead of the usual one, so it has crystal-clear reception.

BODY, WHEELS AND TIRES

When I saw Pro-Line's new 2000 Ford F350 body for the Traxxas T-Maxx, I fell in love! I like the bodies on my trucks to sit a little high, but the Blazer's body mounts did not extend far enough for the high-riding look I was after. To solve the problem, I attached a small section of aluminum angle to the front and rear shock towers as a bracket and installed long Parma* body mounts. I wanted mega traction, so I glued up a set of Pro-Line* Giant Trac tires and added Sassy Chassis* foam inserts.



The body post bracket is just a hunk of aluminum angle stock, but radiused corners and some attention with a file make it look factory.

PROJECT BLAZER PARTS LIST

Make	Part no.
OFNA	
Torsen Ultra center diff w/spur	10606
Servo shaft w/bearing	31130
Titanium hinge-pin set	36509
Aluminum servo-arms set	31220
Aluminum arm holders (3)	31171
CVD joints, center, Ultra	34051
Aluminum CNC shock standoffs (4)	36507
Super Shocks T3.5mm (pair, F/R)	32229/ 32230
Front Y-brace plate	30660
Aluminum engine mounts (2 pcs.)	31190
PRO-LINE	
Giant Trac tires	1056-00
2000 Ford F350	3096
SASSY CHASSIS	
Foam tire inserts	
HITEC	
HS steering servo	945MG
HS throttle servo	605BB
PARMA	
Body posts	18053



Tamiya hop-up parts for the Juggernaut 2

■ **Oil-filled, coil-over shocks.** These are machined of solid aluminum. To add some more class to the Jug, the shock bodies are anodized gold; they will also fit the Tamiya Clod Buster.

■ **Gold ladder bars.** The stock Jug bars are made of plastic and can flex; the new cast-aluminum arms are much stronger and will never flex. Along with the shocks, the aluminum bars improve the truck's durability and looks.

■ **Light kit.** Tamiya's light set includes bulbs for the grill's headlight buckets and light bar. The supplied switch lets you turn on all the lights, or just the headlights. The 6-cell battery that powers the truck also powers the light set. It looks complex, but I found it easy to assemble and install. It's pretty bright, too.

Nuthin' wrong with the stock parts, but the gold hop-up pieces just ooze cool. As usual, Tamiya's aluminum parts glow with a perfect finish.



*Addresses are listed alphabetically in "Featured Manufacturers" on page 200 . ■

RTR doesn't stand for "Ready to ruin"!

I'm seeing more emails these days from first-time nitro hobbyists. Even if the emailer doesn't "fess up" in a statement like, "Chris, this is my first nitro car ...," I can still tell by the message that it is, in fact, a first nitro vehicle. Even if you're an experienced electric racer, that first nitro experience will be totally new in many ways. Look, it isn't a big deal. We're all trying

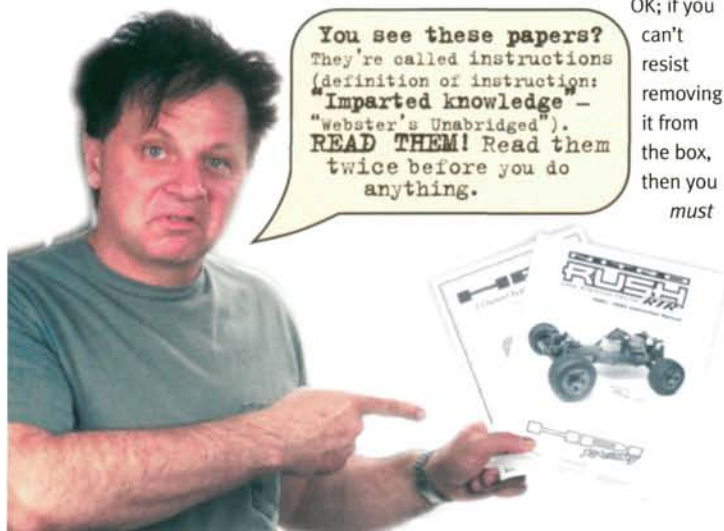
what I was doing; I didn't. I've now consulted someone who does. You see, it's the same for all of us.

AT FIRST—DO NOTHING!

The first thing to do when you open the box of a ready-to-run nitro car is NOTHING! Don't even take the vehicle out of the box, if you can resist (I must be dreaming). Well

OK; if you can't resist removing it from the box, then you must

You see these papers? They're called instructions (definition of instruction: "Imparted knowledge"—" Webster's Unabridged"). **READ THEM!** Read them twice before you do anything.



new things all the time. Why, just last weekend, I finished wiring the HO trains I've set up to run along the walls in my workshop, and guess what? The first time I applied juice to the tracks, it was melted-wire-smoke and blown-trans-former-fuse time. I thought I knew

resist the urge to yank away at the pull-start cord the moment you get the thing out of the box. I know it's tempting, but DON'T DO IT! There might be precious little lightweight oil left over from the machining



Before you pull the starter cord even once, remove the glow plug and air filter and lubricate your engine by putting four or five drops of after-run oil in both the plug hole and the carb venturi. Wait a minute for the oil to spread onto the cylinder wall, and then pull the engine through—gently. Then drain out the excess oil and replace the plug and air filter.



process to protect the piston/sleeve surfaces from being scored. This is particularly true of a piston and sleeve set that fits tightly at the top of the stroke.

First, read the instructions—twice. I mean *all* of the instructions and the addendum, if there is one. Many RTR nitro vehicles have separate instructions for the vehicle and the engine. Read them both thoroughly—twice. I find instructions boring, too, but RTR nitro vehicles are complex machines, and unless you're a millionaire, you won't want to ruin the thing the first time out.

PRESTART PREP

OK, now that you've read the instructions—and taken the vehicle out of the box (I'm quite sure)—you can touch it. The first "touchy" thing to do is to remove the glow plug and put 4 or 5 drops of after-run oil into the glow-plug hole to lube the piston and sleeve surfaces. I use Pacer's* After Run oil, but any brand will do, including Marvel* Mystery Oil. While you're at it, take the air cleaner off and put a few drops into the open carburetor venturi. Let the engine stand a minute so that the oil spreads across the top of



When you get your first nitro-powered, ready-to-run vehicle home, the first thing you should do with it is ... NOTHING!

the piston to the entire sleeve surface. Now you may cycle the engine through a few strokes by pulling the starter cord—gently! After a few pulls, turn the vehicle upside-down to drain off excess oil. If you leave too much oil in the engine, you might cause hydra-lock when the piston comes up on compression.

Now that your engine is pro-



Ready-to-run RC vehicles often suffer from screws loosening within the first few runs. This is especially true of screws that are threaded into metal components; the ones threaded into composite materials are more likely to stay put. Go over your vehicle and remove the screws that are threaded into metal; apply a little mild thread-locker to the threads and screw the screws back in. Here, engine-mount screws—always among the first to vibrate loose—are being treated.

tected with an ample coat of prestart lubricant, you can replace the plug (don't overtighten it) and air cleaner.

How many times have you seen some dork treat a pull-start on a brand-new nitro engine as if it were a yo-yo string? Don't you do it; don't let your friends do it; and if the salesman at your hobby shop does it while showing you a new car, tell him you want the other one on the shelf.

FIRST START

After you've filled the tank and primed the engine following one of the recommended methods described in the photo captions, you are now ready to—no, not start the engine. Ha, ha! Got ya! For initial start-up and break-in, the instructions will specify a certain number of turns for the main needle valve to be open—two, for example. I often open the needle an extra 10 to 15 degrees more. Manufacturers try to suggest the best all-around starting point for carb settings, but owing to acceptable manufacturing tolerance varia-



After a few break-in runs, check the slipper clutch; a little too tight is better than a little too loose.

tions, all needle valves are not created exactly equal. Add to this varied weather conditions and humidity, and the slightly richer setting I opt for can't hurt, and it might even help, especially on hot, humid days.

If you have a freshly charged

glow-plug battery and fresh fuel that is primed to the carb and into the engine, the thing has to start. It's that simple. If it doesn't start, your plug is bad, your battery is dead, or fuel isn't getting to the carburetor spraybar.

FIRST RUN

Again, follow the instructions to the letter. Try to do your initial break-in on a cool, dry day. If it's summer or you live in a warm climate, try to at least choose a less humid day.

I do all my first break-in runs on a hard surface for low rolling resistance. This goes for off-road cars, too. Go easy on the hard accelerations and prolonged full-bore operation. Also, for optimum cooling, remove the body for the first three or four runs. It's most important during this stage to remember that the 2-stroke,

alcohol-burning glow engine is really liquid-cooled. Yes, I know it has cooling fins and is air-cooled—somewhat; but more cooling is accomplished by heat's being carried out through the exhaust with the expelled oil and



Priming your engine is one of the three "vitals" for good engine starts, the other two being a good glow plug and a freshly charged glow-plug-lighter battery. When you have filled the tank with fuel, you have to get the fuel to the carb and into the engine: if your tank has a primer, you can pump it, or you can turn the engine over by pulling the pull-starter cord while covering the exhaust outlet with your thumb (don't do this when the engine is hot); this will pump pressure into the tank and push fuel into the carb. Go easy when priming or you'll flood the engine.

unburned alcohol. Keep it on the rich side, even after it has been broken in and especially on hot and humid days.

SHOW SOME RESPECT

When you've finished running your vehicle for the day, don't throw it into the corner as though it were a baseball glove. After-run maintenance is called for every time. If you aren't prepared to spend a few moments on this, I suggest you switch to another hobby—something like Pokemon-card collecting. Anyway, just a couple of minutes spent with after-run

maintenance will make your enjoyment of the hobby so much greater. Your vehicle will run better and more consistently for a long time.

The first thing you do is get all the fuel out of the vehicle. Drain the fuel out with a fueler. Don't empty the remaining contents of the tank onto your father's gorgeous Chemlawn grass; it will leave a huge brown spot. I try to run the tank dry. If you have to empty the tank, remember there's still

unburned fuel left inside the engine. Fuel left in an engine is a killer. Alcohol is hygroscopic, meaning that it attracts moisture (unlike gasoline, which is hydrophobic and repels moisture). Unburned fuel in your engine will attract moisture that promotes the corrosion of internal parts.

Disconnect the fuel tubing from the carb in case there's fuel left in it, and run the engine dry. Next, remove the glow plug and air cleaner, put a few drops of after-run oil in the glow-plug hole and carb venturi, cycle the engine with the pull-starter, and replace the plug and air cleaner. Now clean the entire car with denatured alcohol, plug the exhaust with a piece of paper towel so oil doesn't drip onto your mother's priceless antique oriental rug, and your vehicle will be ready for use the next time you want some action.

OK; that's it for now. Remember, do everything I tell you to do, and you'll have a lot more fun. Why do you think I'm always smiling? Wait; forget I asked that question.

**Addresses are listed alphabetically in "Featured Manufacturers" on page 200. ■*



When you've finished for the day, spend a few moments on engine maintenance. Empty the tank with your filler bottle, clean the wheel bearing with motor spray, and then apply oil. Clean the entire car with denatured alcohol (use a spray bottle), and plug the exhaust stinger with a piece of paper towel. There's always a little oil left in the tuned pipe just waiting to drip out onto something expensive such as the living-room couch. Remember: we want RC cars to be welcome in the house—don't we?

The rear servo mounts are Trinity Double-XX4/Street Weapon hop-ups that replace the stock plastic mounts with blue aluminum. I had to install spacers beneath the servo mounts to use them in the TC3 conversion, and I used a set of pan-car-style servo-mounting blocks to do the job. I didn't want to damage the HG aluminum rims when tearing up the parking lot, so for driving, I used Pro-Line* Gumby wheels with the Losi tires. You can run with the aluminum wheels, but I want to keep mine in perfect shape.

PERFORMANCE

The Associated engine produces a lot of torque, and that equals great acceleration. A dusty, unprepared surface doesn't offer ideal traction, and there was way too much wheel spin; after a few laps, the car began to clean a groove in the parking lot, and the Losi tires hooked up better as they warmed up. This package would do better on a clean surface.

The car seemed a little slow on the top end. Gearing choices are limited, so little more can be done to improve top speed. The top speed would be adequate for an average racetrack, but the car loses its legs in a wide-open parking lot. A 2-speed tranny would definitely have sent the TC3 into warp speed, and I hope a 2-speed is in the works. Handling made up for the lower numbers in the top-speed department. Although the nitro car's CG is higher, my stiff suspension setup seemed to compensate and helped retain the excellent feel of the electric TC3 chassis.

Braking was decent but seemed to fade as the pads wore in. The brake linkage takes some of the blame for this because the rotary-carb setup puts the rods at a 180-degree angle to the servo horn—not the most efficient setup. This conversion is better suited to a slide carb, which would eliminate the awkward throttle/brake-linkage setup. The TC3 in nitro trim still has four-wheel braking, unless you use the optional one-way setup. I used the stock diffs for full-time 4WD, which is a good setup for low-traction tracks. The downside is some "push" experienced when braking, but I find it easier to drive around the push than to cope with the oversteer often associated with a one-way front end.

SHOULD YOU BUY ONE?

If you are looking to get into nitro-sedan racing but can't wait for Associated to release its own nitro TC3, Trinity has what you need right here. This nitro conversion is very simple and retains the suspension

geometry that makes the TC3 so excellent.

The total cost of the conversion (including the TC3 kit you'll need to build it) is expensive, but the Trinity parts are top quality and well finished. You certainly get what you pay for, but it does put a dent in your wallet. If you're like me, though, and dig blue aluminum, you'll think the conversion is well worth its cost. And if your nitro tourer just has to be an Associated, this is the only way to get one!

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TEAM LOSI RALLY WEAPON Continued from page 99

PERFORMANCE

Since there isn't any consensus as to what a "rally track" is, I tested the Rally Weapon on- and off-road, on a parking lot and at Xtreme RC's (New Milford, CT) dirt track. I am very familiar with the Street Weapon's handling characteristics, and I found the Rally Weapon's behavior very similar. The extra ground clearance was welcome, since I didn't try to avoid anything. On the asphalt, the car reacted similarly to the Street Weapon, but it has slightly more body roll because of its softer springs and

greater ground clearance. On the dirt track, it was apparent that the tires are not full-on off-road tires. The bumps were handled with ease, but traction in loose dirt was lacking. I compensated by being a little smoother on the throttle, and the Rally Weapon became fairly stable. The tires had decent grip and seemed to offer a fair compromise of performance versus tread life for the on-/off-road applications they were designed for. The suspension was a tiny bit too soft, so I replaced the stock oil with Losi's 37.5WT oil. With a slightly stiffer

suspension, the Rally Weapon was more aggressive through the turns and was less affected by minor imperfections in the pavement. Jumping off curbs and driving through potholes wasn't a problem; in fact, this was actually quite fun and a welcome change from searching for the smoothest possible line with a slammed sedan.

THE VERDICT

Hobby shop owners should pay special attention to this car. If you don't have the space for an off-road track or if the parking lot is too rough for serious sedan racing, then a rally class is just what you've been waiting for. The Rally Weapon's capable handling makes it perfect for rough parking lots. Change the surface to dirt, and a unique form of racing is born. To have released a full-blown rally edition kit, Team Losi must feel that this form of racing will come on strong, and I tend to agree. Although not the first rally car, the Rally Weapon could be the catalyst that sparks new interest in multi-surface racing.

It's surprising that rally-type racing hasn't been more popular, since it encompasses the elements of both off- and on-road racing. Rally cars can hit jumps and handle multi-terrain tracks, and they have the realistic look that makes touring cars so popular. Losi has laid down the track for companies to release high-performance rally cars and not just sedans that have an extra millimeter of ground clearance.

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- 3022 - Alum Rear Uprights
- 3030 - Light Delrin Diff Outdrives
- 3038 - Alum Clamp Motor Heatsink
- 3055 - Alum Front A-arms
- 3056 - Alum Rear A-arms

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Chris's BACK LOT

The opinions expressed on this page do not necessarily represent the opinions of the entire *Car Action* staff. Any resemblance to reality is purely coincidental. Send your correspondence, hate mail, love letters, photographs—anything you like—to Chris's Back Lot, c/o R/C Car Action, 100 East Ridge, Ridgefield, CT 06877-4606. My email address is: chris@airage.com.

BY CHRIS CHIANELLI

Gentleman Gene *Friend to all*

There are those within the industry who drop Gene Hustings' name in such statements as "I know Gene Hustings, president of Associated, personally," and the not-so-subtle meaning in between the lines is, "and that makes me part of the in crowd." Whoever thinks that Gene regards himself as part of an elite doesn't know Gene at all. Whenever I've run into him at an event, he grabs two chairs and says, "Chris, you got a half hour? Let's talk about engines." And Gene reserves the same time, and more, for the 12-year-old kid having problems with his RC10, or with any other manufacturer's car, for that



(Above) Associated Electrics started out as a slot-car company, but Gene was a force behind the company's early 1/8-scale gas efforts. This looks like an RC100, which was basically a giant nitro pan car.

(Above left) even if had Gene retired after the original RC10 buggy, he would still be a legend today. Without the RC10, it's doubtful that off-road racing would have exploded so dramatically in the 80s.

(Left) to celebrate his retirement, Gene threw a fantastic racing party at Dromo-1, a really cool indoor go-kart track in California. All the big names in RC racing and plenty of industry biggies were there and behind the wheel. The figure in the background is Gene, videotaping the whole deal.

(Below) Gene accepts a hand-crafted memento from his family

(his son Curtis is on the mike). I guess they couldn't get city approval on the 100-foot Gene Hustings statue, so they had to settle for something smaller....



(Far left) Gene is quick to acknowledge the support of his wife, Midge, and his family, Roger Curtis and Cliff Lett, everyone at Associated, and many others as an integral part of his success, but it takes a fire-brand to lead the way. Thanks for everything, Gene.

matter. He has been there for everyone—not just the "select few," but everyone.

Gene has made many great contributions, but the most valuable thing he has brought to the hobby is himself and his down-to-earth, disarming demeanor. He always cares about the young aspiring racer; he has the brilliance to recognize that while our hobby is about radio control cars, it's about people first. He's not only fun to be around, but he makes others feel like they count, because to Gene, they do.

Learning of Gene's retirement really bummed me out because I'll miss him! I certainly hope that he will continue to frequent the RC scene because, like everyone else who has spent some time with him, I always walked away from him feeling good.

Chris

